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King Range National Conservation Area

- •Proposed Management Program•
- •Draft Environmental Statement•
- •Economic Analysis•
- •Draft Regulations•

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KING RANGE NATIONAL CONSERVATION AREA

PROPOSED MANAGEMENT PROGRAM

United States Department Of The Interior
Bureau Of Land Management

May 1974

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Rising abruptly from the ocean beach, the King Range attains an altitude of 4,087 feet within only three miles of the Pacific shoreline. The steep, thickly vegetated mountains are remote and often clothed in somber fog. They were too rugged to attract many settlers and have been largely bypassed by civilization. The range has thus earned its reputation as "California's Lost Coast."

I INTRODUCTION

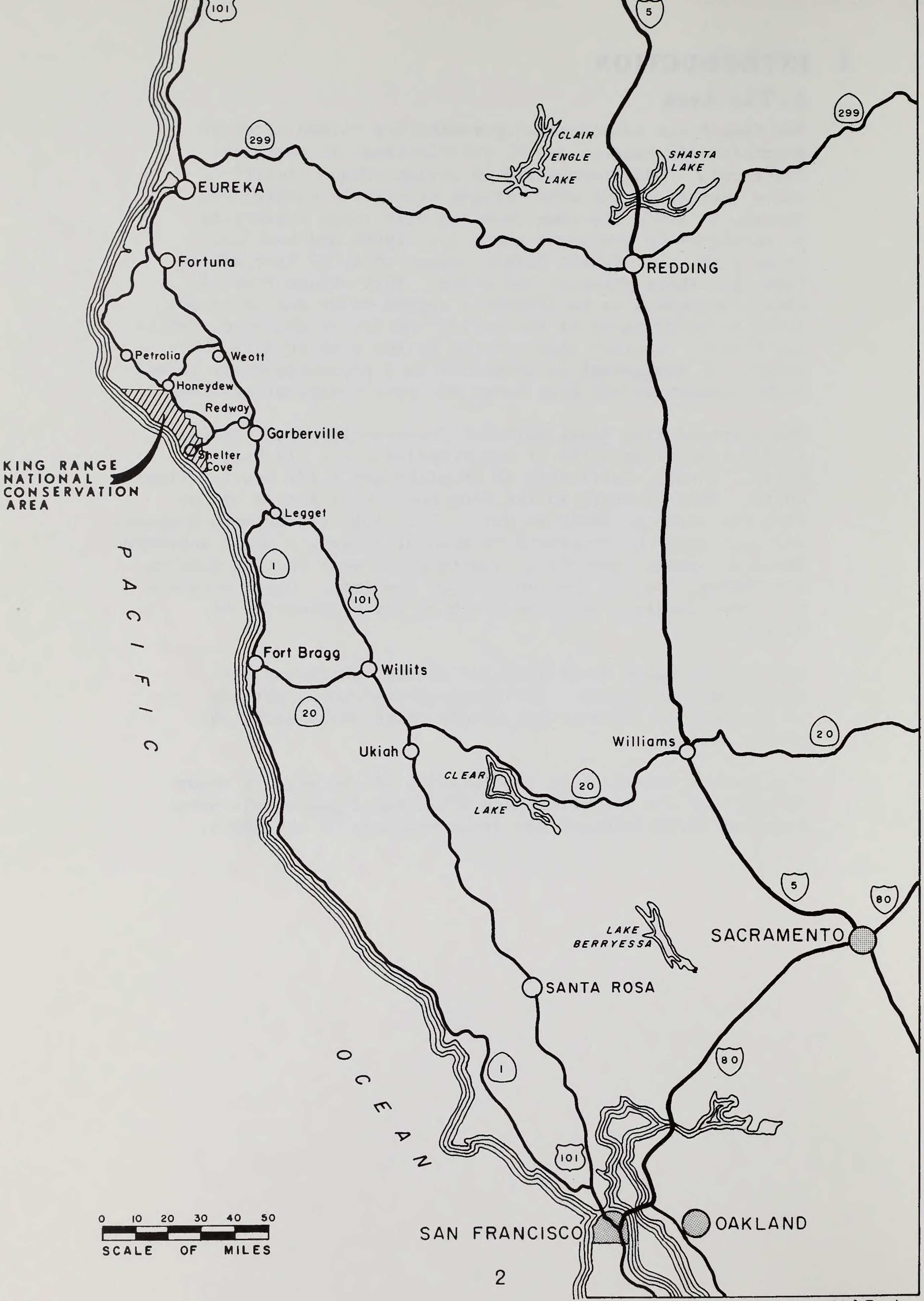
A. The Area

The King Range encompasses approximately 54,000 acres of mountains and beaches on the Pacific Coast in northern California. Long recognized as having unique significance because of its wild, rugged relatively undeveloped nature, it takes its name from the high ridge traversing it northwest by southeast above its bluffs and beaches. Kings Peak, the highest point, rises to 4,087 feet within less than three miles of the ocean. This abrupt rise is rarely surpassed on California's rugged coast and is seldom found in other parts of the world. An Act of Congress, Public Law 91-476, requires that a study of the area be made and a program of management be developed as a prerequisite to formal establishment as the King Range National Conservation Area.

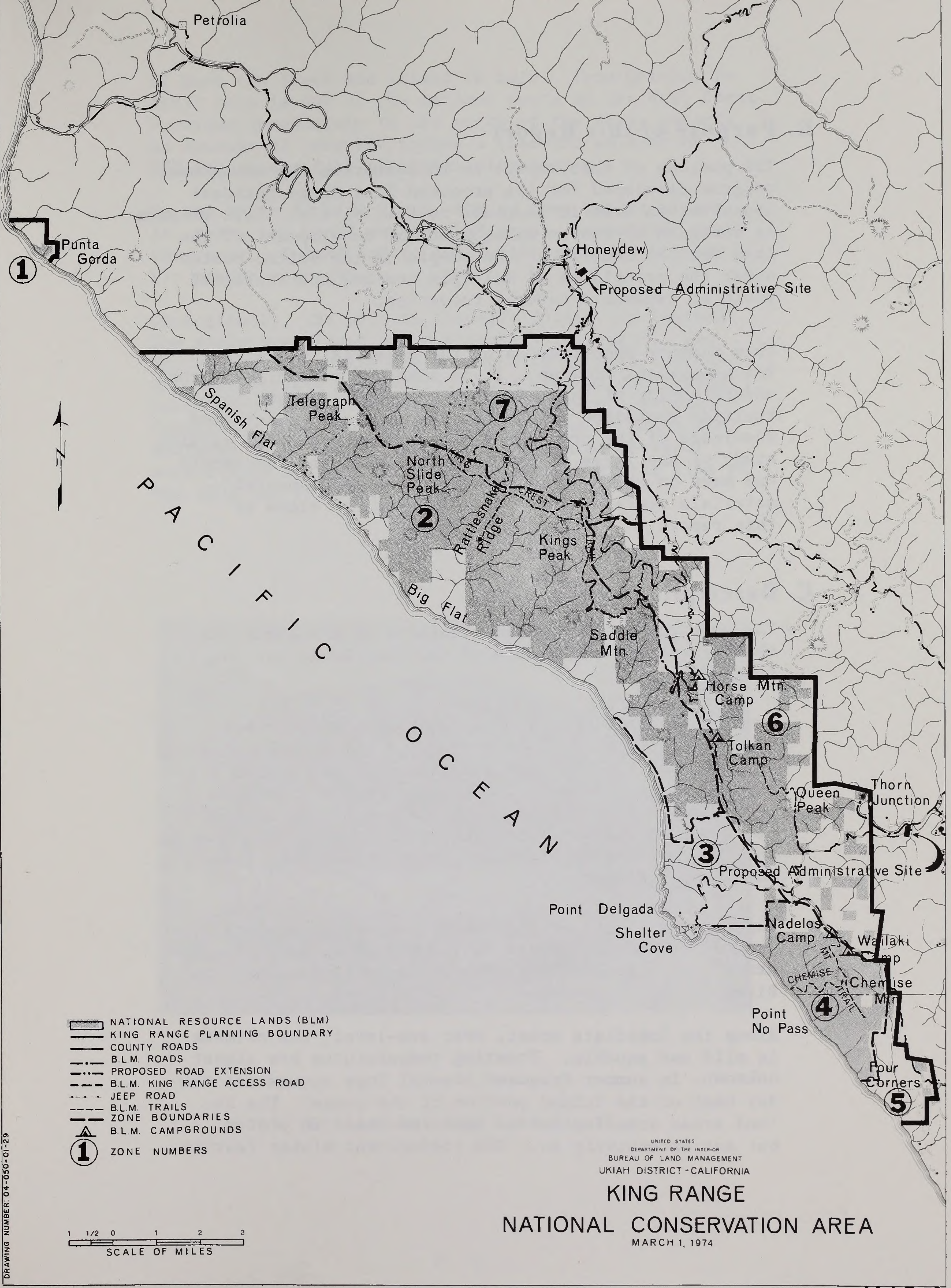
The proposed King Range National Conservation Area (KRNCA) is 230 road miles north of San Francisco, a 4 1/2 hour drive. Eureka, California is 70 miles and 1 1/2 hours further north. Most visitors to the King Range will arrive either from the north or south by way of U.S. 101, the Redwood Highway, and exit onto the Shelter Cove Road at Redway, a small southern Humboldt County community. Twenty miles west on this winding road brings them to the boundary of the Area. Other visitors may enter the Area from the north by way of Honeydew or Petrolia.

Most of the KRNCA is in Humboldt County, which has its county seat at Eureka. The southern-most three percent of the Area is in Mendocino County, with Ukiah being the county seat.

A general orientation of the location of the area is shown on Map 1 on the following page while Map 2 presents a more detailed delineation of the study boundary of the KRNCA.


101
5
299
CLAIR ENGLE LAKE
SHASTA LAKE
299
EUREKA
Fortuna
REDDING
Petrolia
Weott
Honeydew
Redway
Garberville
KING RANGE NATIONAL CONSERVATION AREA
Shelter Cove
Legget
PACIFIC
1
101
Fort Bragg
Willits
20
Ukiah
CLEAR LAKE
20
Williams
20
5
80
LAKE BERRYESSA
SACRAMENTO
SANTA ROSA
OCEAN
1
80
101
SAN FRANCISCO
OAKLAND
0 10 20 30 40 50
SCALE OF MILES

MAP I


Petrolia
Punta Gorda
①
Honeydew
Proposed Administrative Site
Spanish Flat
Telegraph Peak
⑦
North Slide Peak
King Crest
②
Rattlesnake Ridge
Kings Peak
Big Flat
Saddle Mtn.
PACIFIC OCEAN
Horse Mtn. Camp
⑥
Tolkan Camp
Queen Peak
Thorn Junction
③
Proposed Administrative Site
Point Delgada
Shelter Cove
Nadelos Camp
Wailaki Camp
Chemise Mt. Trail
Chemise Mtn.
④
Point No Pass
Four Corners
⑤
N
NATIONAL RESOURCE LANDS (BLM)
KING RANGE PLANNING BOUNDARY
COUNTY ROADS
B.L.M. ROADS
PROPOSED ROAD EXTENSION
B.L.M. KING RANGE ACCESS ROAD
JEEP ROAD
B.L.M. TRAILS
ZONE BOUNDARIES
B.L.M. CAMPGROUNDS
① ZONE NUMBERS
1 1/2 0 1 2 3
SCALE OF MILES
DRAWING NUMBER: 04-050-01-29
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
UKIAH DISTRICT-CALIFORNIA
KING RANGE
NATIONAL CONSERVATION AREA
MARCH 1, 1974

MAP 2

B. Purpose of this Report

The purpose of this report is to summarize the management program developed for the proposed King Range National Conservation Area in response to P.L. 91-476. This program is designed to insure management and development of the Area for the benefit of the people of the United States under the principles of multiple use and the sustained yield of renewable natural resources.

This summary report contains the essential elements of the management program. It is aimed at providing a broad understanding of the unique values, problems and opportunities contained in the King Range Area. A detailed knowledge of the proposed management program will require study of the large volume of plans, analyses, documents and maps on which it is based. These supplemental materials are listed as Appendices at the close of this report.

C. Description of the Area

The most prominent physical features of the KRNCA are the high mountainous ridge of the King Range and the coastal beach.

On the western slope of this range many short, steep streams run directly to the ocean. A combination of steep slopes, high rainfall and unstable soil and rock formations has created many cliffs, huge rock slides and talus. With few exceptions, the steep slopes extend clear to the beach. Thus, the beach is usually narrow and, where a number of rocky points extend into the surf, may be non-existent.

The eastern slopes of the range, while also steep and rugged, are not as severe as the western side. Streams drain less abruptly into the northerly flowing Mattole River.

Along the immediate coast, near sea-level, the climate is mild and equable. Freezing temperatures are almost unknown. In summer frequent coastal fogs counteract the dry heat of the inland portion of the range. The inland areas are also colder than the coast in winter, but not excessively so. The predominent winter feature of both the coast and inland is rain. From October to April this is one of the wettest spots on the West Coast. Honeydew, immediately to the north of the Area, records an average of over 100 inches a year and as much as 200 inches may fall at higher elevations.

To the north of King Range, and to some extent within it, there are broad expanses of grass, especially near the coast. Inland and to the south brush and Douglas fir timber predominate.

Geologically, the area is strongly folded and faulted. The rocks are almost all sedimentary in origin. The sandstones and shales are not hard rocks and, together with the intense deformation, have created conditions where erosion is common and locally severe. Enormous landslides scar the mountainsides. Some of these are believed to be associated with earthquakes; several such slides are reputed to have occurred at the time of the 1906 San Francisco quake.

Rattlesnake Ridge from Big Flat

Remnants of the Early Steamship Era

D. History

Little is known of the Indians who first lived in the area: Whilkuts, Sinkyones, Mattoles. None of them survived very long after the coming of the white man, and very little of their tradition and culture was preserved. They occupied the area for at least 2000 years, according to a preliminary estimate by an archaeologist based upon his observations of shell mounds along the beach. They undoubtedly used the entire area for hunting and gathering, but the evidence remains to be found.

The first white settlers came in the 1850's, attracted by the excellent grazing land. For nearly 100 years livestock products were nearly the sole support of the area. Some tanbark (bark from the tanoak tree, used as a source of tannin for leather-making) was sent to market, as were apples from a few orchards in the Mattole Valley. One interesting but abortive effort to develop industry is commemorated in the name of the town of Petrolia just to the north of the KRNCA. The first oil well in California was drilled there. Petroleum products were first shipped to market in 1865; however, the quality and volume were low and very little commercial production ever actually took place.

About 25 years ago, Douglas fir timber became valuable and in the 1950's and 60's it was harvested at a great rate. Timber left on private forest land is limited and the logging industry is essentially dormant in the area.

All the sawmills in the immediate area have closed, and what timber is now harvested goes to the larger mills at Eureka and other major centers. Although the King Range is in the heart of the Redwood Empire, by a curious combination of climate and topography, only a few redwood are found within it.

Commercial salmon fishing off the coast has been important, but the fishing fleets are headquartered in other places, resulting in little economic impact on the area. Recreational fishing has also been important, mainly around the little settlement of Shelter Cove.

Shelter Cove

Another factor that has had a significant effect on the Area is recreational subdivision for second homes and retirement. While not proliferating as much as they have in other parts of California, portions of the area have been subdivided, affecting the types and amount of use occurring within the area. The most notable development has been Shelter Cove, with several thousand lots sold. In other parts of the King Range, such as the private lands in Whale Gulch, a sizeable number of young people have also settled to pursue various rural life styles.

E. Land Ownership

Of the total of 54,199 acres within the study boundary of the KRNCA delineated by the Act, 34,095 acres are national resource lands administered by the Bureau of Land Management, an agency of the U.S. Department of the Interior. The remaining lands, comprising 20,104 acres, are privately owned.

The acreages for private and public lands cited above are based on the situation as of March 1, 1974. As the acquisition program described later continues, the proportion of public lands will increase with a corresponding decrease in the amount of private lands. Also, this acreage does not include proposed boundary revisions. Recommendations for boundary adjustments are called for in the Act and are discussed in Part III of this report.

Private and public lands are intermingled throughout the proposed Conservation Area. However, the largest concentrations of private lands are along the immediate coast, in the Shelter Cove subdivision, and in the southern portion of the area commonly referred to as Whale Gulch.

II LEGISLATION

The legislation which provides for the establishment of the King Range National Conservation Area is the culmination of years of effort to achieve recognition for the King Range. As long ago as 1929, the area was recognized as outstanding and was withdrawn from disposition or sale under the public land laws in order to preserve it until its highest and best uses could be determined.

In 1962, responding to increased interest and awareness of the area by local residents and conservation organizations, Congressman Clem Miller introduced the first version of the King Range Act. After Miller's death, Congressman Don Clausen carried on the effort to achieve special recognition for the area, and Public Law 91-476 was signed by the President on October 21, 1970.

The main features of the act are:

1. It authorizes and directs the Secretary of the Interior to establish within described boundaries, the King Range National Conservation Area, "and to consolidate and manage the public lands in the area with the purpose of developing for the use and benefit of the people of the United States the lands and other resources therein under a program of multiple usage and of sustained yield." Procedural requirements for accomplishment of this objective are set out in the Act.

2. It directs that "...there will be a comprehensive, balanced, and coordinated plan of land use, development, and management of the area, ...based on an inventory and evaluation of available resources... and other features of the Area." The plan is to cover all lands within the Area, regardless of ownership.

3. It requires that "the plan will indicate the primary or dominant uses which will be permitted on various portions of the Area" and that "secondary or collateral uses may be permitted to the extent that such uses are compatible with and do not unduly impair the primary or dominant uses, according to a seasonal schedule or otherwise."

4. The Secretary may acquire lands or interest in lands within the Area through purchase or exchange. In an exchange of lands the Secretary can pay or accept up to one-third the value of the land in cash to equalize values. The Secretary may not acquire, without the consent of the owner, any private lands which, on the date of the Act, were utilized for residential, agricultural, or commercial purposes so long as such usage is compatible with the purposes of the Act.

5. The Secretary may establish reasonable mining regulations to protect the scenic and aesthetic values of the Area and to assure against pollution of the streams and waters.

6. The Secretary shall use public and private assistance as may be required to prepare a program of multiple usage and of sustained yield of renewable natural resources for the Area. The program shall include, but is not limited to:

   (1) A quantitative and qualitative analysis of resources.

   (2) Proposed boundaries of the area.

   (3) A plan of land use, development and management together with any proposed cooperative activities with the State of California, local governments, and others.

   (4) A statement of expected costs and an economic analysis of the program with particular reference to costs to the United States and expected economic effects on local communities and governments.

   (5) An evaluation of the program in terms of local interest.

7. The Secretary shall establish the Area after copies of the program are submitted to Congress, the Governor of California and the supervisors of the counties in which King Range is located, after publishing a notice of his intention, and after receiving expression of local views.

III THE BOUNDARY

The Act requires that the management program for the proposed conservation area include recommendations as to the boundaries of the area. The boundary of the planning area is shown on Map 2. The same boundary is suitable for the conservation area with several exceptions.

Section 9(a) of the Act, in delineating the survey and investigation area for planning purposes, establishes a separate 254 acre area surrounding the Punta Gorda lighhouse. This area lies approximately two miles below the mouth of the Mattole River and three miles above the northern boundary of the main King Range Area.

In order to provide the full protection of the King Range Act, to assure compatible uses of private lands and facilitate management, we recommend that the Area boundary be extended as shown on the fold-out KRNCA map at the close of this report.

Inclusion of the area along the south bank of the Mattole River, from approximately one and one-half miles above its mouth, and extending south to Punta Gorda in a strip approximately three-quarters of a mile in width (between the beach and logical inland survey subdivision lines) will ensure better control of visitor vehicle use from the county road than is now provided by the narrow access route along the old Coast Guard road location. Continuation of this three-quarter mile wide shoreline strip from Punta Gorda south to the main King Range Area will provide better management control along the foot-access route planned along this stretch. Access in this area is planned to be by easement, but compatible adjoining land use is essential.

Very little additional acquisition of private lands is planned in this area. The boundary expansion is primarily designed to obtain the same degree of protection to assure compatible use on private lands with adjoining public uses and values that is provided throughout the King Range National Conservation Area. Only a limited area along the Mattole River needed for camping and parking area construction is planned for acquisition.

One forty acre tract (NW¼NW¼ Sec. 36, T. 4 S., R. 1 E.) within the KRNCA study boundary was inadvertently omitted in the Section 9(a) description. This omission could allow incompatible uses to develop on this uncovered inholding. We recommend correction of this oversight.

We also recommend the inclusion of a forty acre tract of national resource land (SE¼SE¼, Sec. 19, T. 5 S., R. 2 E.) contiguous to other public land within the present boundary at the headwaters of Whale Gulch. This minor boundary modification will facilitate more efficient management and provide uniform protection to closely related lands.

Legal descriptions of the proposed boundary revisions and further rationale are provided in Appendix G. Additional area involved totals 3,066 acres.

IV THE RESOURCES

The King Range Act calls for "a quantitative and qualitative analysis of the resources of the Area." This is the essential starting point for land use planning. Information on resources of the area has been gradually compiled since 1962. Additional intensive field inventories of the resources of the King Range Area were conducted during 1972. The detailed results of this effort comprise several volumes of reports, stacks of computer printouts, and many photographs and map overlays. Only a condensed summary of the information gathered can be presented here. As noted in the Appendices section of this report,the "Unit Resource Analysis" which compiles this data is available for review at BLM offices in Ukiah, Sacramento and Washington, D.C.

Under BLM planning procedures, current resource inventories are evaluated from the standpoint of quantity, quality, current uses, trends, and potential capabilities under full management. The following summary evaluations, presented by major resource categories, focus on the present resource situation, uses, and trends. Capabilities for development of specific resources are subsequently evaluated within the context of economic, environmental and multiple use considerations and conflicts between competing uses are analyzed, including input from the public. A proposed coordinated plan and management program is then developed as outlined in Part V of this report.

A. Lands

Primary land uses currently are for year-round and seasonal residences, open space, extensive recreation and wildlife habitat. Secondary uses currently include grazing, with timber production and mining operations temporarily inactive. Agricultural use and potential is low due to rough topography and soil conditions.

The Shelter Cove subdivision contains nearly 5,000 lots, most from one-tenth to one acre in size. Although only 40 residences have been constructed to date and the trend within recent years has been about five new starts per year, the developer projects future construction starts at the rate of 60 to 80 per year. The Whale Gulch area contains a smaller number of rural residences more widely scattered and not the result of a planned subdivision. Several owners of land being considered in BLM's King Range land consolidation program have been approached by subdividers. In summary, subdivision interest is active, but actual residential construction is very limited and the growth trend slow.

Residential growth in the area could bring need for solid waste disposal sites and additional road and utility rights-of-way. Communications site needs on higher peaks (e.g. for California Division of Forestry) are a possibility.

Other public purposes such as ecosystem studies in the coastal zone or other remote parts of the King Range and archeological studies of Indian culture remnants are land associated values that must be considered in planning.

B. Geology and Minerals

The area shows much evidence of geologic instability. Two fault zones have been identified in the King Range. One is thought to be associated with the well-known San Andreas fault and the 1906 San Francisco earthquake. Unstable colluvial deposits with numerous slumps and slides are common throughout the area.

Such unstable conditions call for special care in planning locations for construction such as roads, trails and recreation facilities. Detailed geological and soils information is included in the Unit Resource Analysis.

The U.S. Geological Survey reports the King Range to be without value for minerals covered by leasing laws. Despite early oil and gas production at Petrolia, complex folding and faulting make the King Range a less likely prospect for such deposits than the Petrolia district to the north.

An extensive BLM mineral inventory conducted in 1962 indicates that the King Range area generally has a very low potential for mineral production. However, there has been some manganese production in the past from the Queen Peak mine and some potential still exists. While the Mattole River produces sand and gravel, no workable deposits are known within the King Range boundary. Roads, however, are often satisfactorily surfaced with hard sandstone excavated during construction operations.

C. Forests

About 70 percent of the Area has the potential to grow timber. Some of these lands do not now contain stands of trees because of logging, wildfires or other causes. The results of the timber inventory are summarized below.

TABLE I

TIMBER RESOURCES OF THE KING RANGE

	BLM Land	Private Land	Total
Timberland, acres	21,006	16,774	37,780
Volume, 1000 bd.ft.	184,054	99,517	283,571

Logging has been virtually at a standstill in the Area during recent years. After initial harvests totalling 9 million board feet over several years, BLM placed a moratorium on timber sales in 1965 pending outcome of the King Range National Conservation Area proposal. Logging of private lands, especially on the critical west slope, has also been all but stopped during this period, in part due to a cautious access policy across public lands by BLM pending final management decisions for the Area.

Overall, however, the 1972 forest inventory indicates that 5.8 million board feet of timber could be harvested annually on a sustainable basis from the 19,546 acres of public and private forest lands in the Area found to be environmentally capable of supporting economically feasible timber management. This projection is based on fully intensive management including such practices as genetic improvement, fertilization and thinning. Other multiple use and environmental protection considerations that include protection of natural primitive values, wildlife habitat, fisheries improvement and recreational development make this the upward limit of capacity for initial planning rather than a production forecast. This is evidenced in the plan that follows which commits less than half of this potential to actual production as a result of such considerations.

300 bd/ft
Acr
yr

D. Livestock Forage

A less obvious resource use than timber production is livestock grazing, since most grazing areas are now in the northwestern part of the Range, far from public lands. The vegetative inventory shows 4,342 acres have grass cover. Enough forage is now produced on the grassland type to furnish 3,084 animal unit months of use. Wildlife requirements are estimated at 1,224 animal unit months, leaving 1,860 AUM's for livestock use. However, a portion of this grass type occurs in small glades within forests and brush fields. It is not readily available for domestic grazing and is not used. Current operable capacity for livestock grazing is estimated at 1,274 AUM's. This will permit 212 cows or 1,060 sheep to graze for six months each year.

While BLM currently administers only one grazing lease in the Area for 76 AUM's of use, sheep grazing on private lands is estimated at over 1,300 AUM's annually. This grazing, when combined with use by deer, somewhat exceeds capacity of accessible forage. Also, concentrations of use and nearly year-round grazing are causing deterioration of the vegetative cover in some areas.

E. Watershed

Over half of the King Range Area is in a stable condition due to its heavy vegetative cover. However, on the remainder of the area, considerable erosion is now taking place, much of it a result of natural geologic processes. Some areas, especially on private land, are undergoing accelerated erosion because of such practices as careless logging, road building, and overgrazing. The high rainfall of over 100 inches annually, steep slopes, and unstable soils are important factors. Many denuded areas, unless proper drainage is provided, will continue to erode until bedrock is reached. Observations on disturbed areas known to be at least 20 years old show that natural healing does not usually take place.

An estimated 1400 acres of cutover forest lands are now in severe or critical erosion classes. Without rehabilitation, continued erosion will prevent reforestation and cause a loss of up to 200 thousand board feet of annual timber production. 3100 acres of grassland are in a critical or moderate erosion class, which unchecked, will result in a loss of about 1300 AUMs of livestock forage annually.

Concurrent with such market value losses will be similar losses in wildlife habitat and forage. However, erosion can be reduced by seeding grass on bare ground, managing grazing to prevent overuse, building waterbars on roads and trails, and building small check dams to catch silt. Areas with severely erodible soil types or poor slope stability have been identified during the watershed inventory and noted for future reference in avoiding damage through inappropriate actions.

The Mattole River carries nearly 200 acre feet of sediment annually with approximately 10 percent coming from within the KRNCA. Its major impact is on fisheries habitat, particularly on spawning areas. Estimated annual runoff from the Area is 327,000 acre feet or 11.5 billion gallons. There are no impoundments on any of the streams flowing from the Area and, except for some use of ground water, there is no direct use of water in the area and runoff flows free to the ocean. The streams flowing from the Area are essentially free of other pollutants. In summary, water quality is more important than quantity.

The relatively short runs of water courses from the west slopes directly to the ocean also represent significant fishery and recreational values that are impaired by siltation where watersheds are eroding.

F. Wildlife

The King Range Area and its neighboring coastal waters contain eight different major types of wildlife habitat. These habitats support a wide array of resident, migratory and visiting animal species. Identified thus far are 31 species of reptiles and amphibians, 75 terrestrial and marine mammals, and 258 bird species.

The wide variety of habitat present provides numerous niches, edges and ecotypes for all the species identified, including some animals classified as threatened under the 1974 Bureau of Sports Fisheries and Wildlife listing. These threatened species include the southern bald eagle, American peregrine falcon, and California brown pelican. There is the possibility of finding threatened reptiles and amphibians as more information is developed on species occurrence. The spotted owl, a potentially threatened species has also been confirmed as a resident of the area.

Spotted Owl - A Potentially Threatened Species

Many nonthreatened, but interesting species such as sea lions, seals and numerous birds presently provide a non-consumptive use in the form of observation and photography by recreationists and those with scientific interests.

Blacktail deer populations currently range from 10 per square mile in dense brush, up to 100 per square mile in open grassy woodlands. Yet harvest by hunters has averaged only 86 deer annually during the past five years. This has been the result of the area's rugged topography, dense cover and limited public access for hunters. Other species hunted to a lesser degree are black bear, valley quail, blue grouse, grey squirrel and brush rabbit.

One animal no longer found here is the Roosevelt elk. This magnificent creature is still common north of the Oregon border, but was exterminated in the King Range many years ago. It appears that it could be reintroduced into King Range. Its preferred habitat is the mixed timber-grass type along the immediate coast.

G. Fisheries

Most of the streams in the King Range are home to juvenile steelhead or rainbow trout. Steelhead, silver salmon and king salmon use some of the same streams for spawning and rearing. Many of the short coastal streams are too steep and shallow to be good habitat while some of the Mattole River tributaries, Honeydew and Bear Creeks especially, are very good habitat. Water purity and oxygen content are generally good. Yet, logging on private lands has damaged many streams by reducing streamside cover, increasing water temperatures and depositing silt in the gravel needed for spawning and food production. Road construction, usually in connection with logging, is the greatest single source of silt. Many small waterfalls and log jams block or hinder fish passage to upstream spawning beds.

Fishing for adult salmon and steelhead in the streams within the King Range is not permitted by state law. This fact and difficult conditions result in only limited fishing for resident rainbow trout and immature steelhead and salmon within the KRNCA. However, these streams contribute significantly to Mattole River and ocean fisheries. On the Mattole River, with 1300 salmon and steelhead angler days estimated use yearly, catches have averaged from .45 to .70 fish per angler day compared to a statewide average of from .28 to .40 fish per day of these species. The KRNCA contains 56 miles of the total 193 miles of anadromous fisheries habitat within the Mattole River system. Quality sport fishing streams in California are in scarce supply. The 1965 California Fish and Wildlife Plan cites the Mattole River as being "...one of the finest steelhead fishing streams on the North Coast" and states "...the Mattole River would support much larger runs of salmon and steelhead if current abuses of the watershed were to be discontinued..."

Oceanic slopes along the King Range Coast are very steep and there is practically no gradual continental shelf, a depth of 200 fathoms being reached two miles offshore at one point. Point Delgada at Shelter Cove provides the only reef area. Together with shoal areas north and south of the King Range, it provides bottom fish habitat. Some 12 species of marine fish congregate near such shoal areas, rocks and kelp beds, including albacore, ling cod, sole, rock perch and rockfish. Tide pools contain a variety of highly colored and interesting forms of marine life.

While there is some commercial salmon fishing off the King Range Coast, landing most of the catch at larger fishing ports, sport fishing is the principal activity operating directly from Shelter Cove. Launchings from this area account for some 13,000 angler days annually, principally in pursuit of coho and chinook salmon.

Tide pools are filled with fascinating creatures.

H. Recreation

The King Range has a number of unique recreational values. The most prominent of these is the combination of a remote, undeveloped, 30-mile strand of ocean beach, adjoined by forested, rugged, relatively primitive mountain slopes. Within the region from San Francisco Bay to the southern Oregon border, there are approximately 265 miles of beach, 38 percent of which are publicly owned. However, of these only four areas could be described as having significant remote or primitive qualities, including portions of the Redwood National Park, Point Reyes National Seashore, the King Range, and the area just south of the King Range between Bear Harbor and Usal Creek. The latter area is privately controlled. Furthermore, the State government's "California Coastline Preservation and Recreation Plan," cites the King Range as "an outstanding example of several geologic features and biotic communities."

The KRNCA contains one of the relatively few publicly owned ocean beach areas along the northern California coast that have been extensively used by recreational vehicles. Three of these areas are partially administered by BLM and others are in the Humboldt County park system. Use is also occurring elsewhere, but legal access is generally lacking.

Therefore, the beach and the fish, birds and animals along it are the major attractions for most people visiting the King Range. The bold rugged slopes of the range also attract people because of scenic values, but much of the area is too rugged for direct use.

During the past year, 56,400 visitor use days were estimated to have occurred within the King Range study boundary. Analysis of this use indicates that the major recreational activities are camping (57%), sight-seeing (27%)*, and ocean fishing (9%). Other important recreational uses are surf swmimming,backpacking, recreational vehicle use, hunting, and hiking. Since 1963, the Bureau has built four small campgrounds, containing 33 family units, 20 miles of hiking trails, and 13 miles of multi-purpose road to accommodate these uses. In addition, there are privately owned camping facilities within the KRNCA at Shelter Cove.

Based on current experience, a continued growth in recreation use at a rate of about 5 percent annually can be expected for King Range without further development. Establishment as a National Conservation Area with attendent publicity and facility development could cause a temporary jump to an annual 20 percent growth for about five years, tapering to 10 percent thereafter, based on applicable BLM and National Park Service experience. Any long run effect of fuel shortages on travel patterns is an unknown factor at this time.

In a regional sense, the North Coast area has many opportunities for extensive outdoor recreation through its numerous state and local parks, national forests, and the Point Reyes National Seashore and Redwood National

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* As measured by visitor use days, this does not truly represent the proportion of total visits devoted to sight-seeing, since the average sight-seeing visit lasts only two hours.

Park. All, to some degree, offer sight-seeing, wildlife observation, fishing, camping and hiking. Yet, approximately four million people reside within a five hour drive of the region's center, and another 16 million California residents are within a two day drive. Out of state visitors have been numerous along Highway 101 in the past. Use pressures make new areas and additional campground capacity desirable along the coast. However, despite a general need for recreation areas along the coast, the recreation values of the King Range and its potential for public use lies less in analysis of use curves than its outstanding unique qualities for extensive outdoor recreational pursuits.

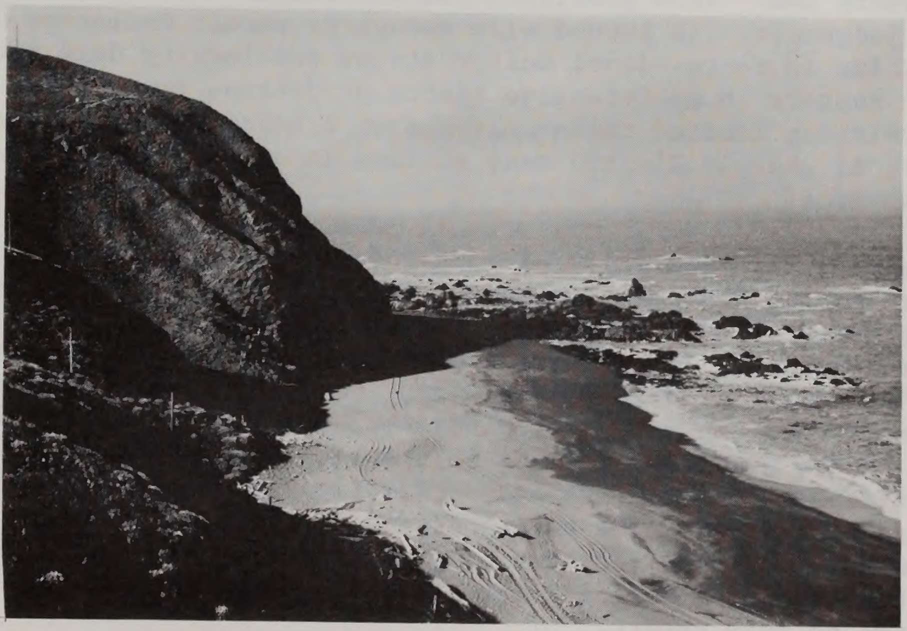
Camping at Wailaki Campground

V THE PROPOSED PLAN AND MANAGEMENT PROGRAM

Inventory findings with analysis of current resource situations and quantitative and qualitative conditions and trends have been discussed in the previous section. The next step in the planning process consisted of projecting unrestrained potential capabilities for management of each individual resource followed by a rescaling of such potential capabilities to meet the real world constraints of policy and environmental requirements (e.g. buffer zones of trees and vegetation to be left along live streams) as well as economic feasibility of proposed practices.

This initial step of the "Management Framework Planning" phase of the BLM planning system provided the framework for arraying and comparing a number of technically, economically and environmentally sound proposals for development of each resource to weigh potential conflicts, complementary relationships and tradeoffs.

Conflicts became apparent as is usually the case in such planning. Timber harvest conflicted with primitive quality preservation in one area and with protection of the potentially threatened spotted owl in another. Complementary relationships surfaced. Watershed improvement contributed to fisheries rehabilitation. Domestic livestock grazing both competed with and aided wildlife habitat conditions in different areas at different intensities. Within recreation itself, vehicle use of beaches conflicted with hiking and wildlife uses.



The beach is a site of conflicts between uses.

Also, through this process some primary use zones became evident. Tentative boundaries of such zones, partially identified in resource inventories, came into sharper focus as information was evaluated. For example, the Shelter Cove Area clearly was dominated by a residential use, the beach area by various types of recreation. Other areas were heavily forested or involved in past logging. Others were found to have especially critical habitat for endangered wildlife species.

The King Range Act states "...the plan will indicate the primary or dominant uses which will be permitted on various portions of the Area." However, it goes on to provide that "...secondary or collateral uses may be permitted to the extent that such uses are compatible with and do not unduly impair the primary or dominant uses, according to a seasonal schedule or otherwise."

Following the Act's zoning instructions closely, a total of seven primary use zones with basically topographic boundaries were identified and delineated based on resource inventory and preliminary planning information. These seven zones are shown on Map 2 with more detailed treatment in the individual zone maps at the close of this report.

Primary use management objectives for each zone were subsequently used in weighing tradeoffs and compromises in conflict resolutions necessary to design a multiple use management program. The Act's definition of primary or dominant use was read quite literally, with acceptance of other uses within a zone that were compatible or did not unduly impair the primary use. This provision permits considerable exercise of judgement. It proved wide enough to permit exclusion of cutting in recreational buffer strips and leaving dead trees for raptors in an intensive timber production zone, while permitting limited timber harvest in a wildlife habitat zone. Yet, it sharply limited many actions in a primitive recreation zone.

Analysis and resolution of conflicts is a difficult process. For example, how much commercial timber production and its employment should be foregone to protect the habitat of threatened wildlife species? How much beach should be open to vehicle recreation and how much confined to foot travel? Should even the number of hikers be curtailed in some stretches to reduce wildlife disturbance? In analyzing these conflicts, environmental, economic and social impacts of alternatives were considered. The environmental analysis and economic analysis developed concurrently with the plan to provide better decision-making information are available as appendices to this report.

Broader guidance was sought in answering these and other questions through public consultation in a series of 17 meetings held throughout the north coastal area of California throughout the planning process. This was followed by a public hearing on the draft plan held in Redway, California on April 6, 1974. A summary of this public participation and interest is provided near the close of this report.

The plan which evolved through the foregoing process and the actions proposed to implement the management program to meet plan objectives are outlined in summary form in the following sections, beginning with a summary of the major problems and controversies addressed in the plan. A brief overview of the plan itself is then presented, followed by a more detailed breakdown of proposed actions area-wide and by individual zones. Overall support activities such as land acquisition, transportation, communication, fire protection, administration, construction and cadastral survey are then identified and discussed.

Close coordination between all resource programs is essential. A summary of coordination is provided for each zone. To pull together a better overview perspective, major elements of the action plan and multiple use coordination requirements are summarized before beginning discussion of individual actions.

As previously noted, this report provides a summary of the proposed plan and management program. Full, in-depth coverage of the plan, including cost and timing of implementation details is provided in the Coordinated Activity Plan, as referenced in the Appendices section.

A. Problems, Conflicts and Controversies

A few examples of existing and potential resource use conflicts faced in the planning process have been cited. A listing of each conflict encountered and its resolution is not feasible in this summary report. This information is available in underlying planning documents. The list of major conflicts treated in the plan which have reached a point of open controversy during public review is very short. Several problems or conflicts are important, but have not brought strong public debate. The major issues are listed below with an assessment of the conflict and public controversy involved. Conflict resolution is noted in brief summary form. More specific details are presented in the sections that follow.

Off-Road Vehicle Use of the Beach - This is the sharpest issue of public controversy. Hikers and some conservation groups strongly favor closure to vehicle travel of the entire beach along the King Range to preserve natural, aesthetic and primitive values. Off-road vehicle groups feel any closures are unwarranted and discriminatory, expressing the opinion that their vehicles do no resource damage and do not unduly disturb other users. The Bureau's plan to zone the beach into mechanical and non-mechanical use areas (6 miles open to ORV's - 20 miles closed) satisfies neither viewpoint and both sides express skepticism on control capability.

Primitive Value Preservation versus More Intensive Multiple Use Development - The issue here is between designating much larger portions of the King Range as primitive and the management for more intensive recreational uses including ORV travel and resource production such as grazing and timber harvest. Less than seven percent of the total area is delineated for primitive area designation in the plan. However, over half the area, the bulk of the King Range west slope, is planned for extensive uses and management designed to protect natural and primitive values. Public comment on this aspect of the plan generally supports enlargement of primitive areas and reduction of multiple use resource production activities such as timber harvest and road building.

Hunting - While the King Range Act authorizes closing of areas to hunting for purposes of public safety, this does not appear necessary at this stage in the management of the area. A number of individuals, some property owners within the KRNCA boundaries, have requested closures to hunting as either human safety or wildlife preservation measures. It is planned to review the need for any hunting closures as safety measures as experience develops. Hunter harvest is an important element in wildlife management for portions of the area heavily populated with deer.

Protection of Non-Game Wildlife Species - Several species of threatened or potentially threatened wildlife species reside within the King Range. Their protection and preservation of their habitat is an important part of the management program that has been designed. There seems to be underlying public support for such an approach. Some potential problems exist in the increased recreational visitor use expected in the King Range. Harrassment of tidal zone animals is of special concern. While vehicle controls are planned, increased use of the area by hikers could also pose a problem. This will be dealt with as more habitat information and experience with human use effects is gained.

Timber Production - Less than half of the King Range timber production capability is planned to be utilized due to needs found for harvesting restrictions to protect natural values, other resource use needs and to avoid irreversible damage to fragile erodible slopes. Economic impacts have also been considered in reaching this decision. This portion of the plan is not a matter of significant public controversy although some have urged even less timber harvesting.

Control of Mineral Developments - The King Range is basically non-mineral in nature; however, the open entry provisions of the 1872 Mining Law have posed a potential problem of indiscriminate and damaging exploration or attempted development of locatable minerals not evident at this time. This issue has come up in discussion with other agencies but has not been a matter of public interest to date. Regulations have been drafted under the authority of the King Range Act to provide measures for stringent control of mineral activities.

B. Summary Overview of Proposed Plan and Management Program

Since the program is presented by seven zones, eight resource categories, six support functions, and numerous coordination factors, it is difficult to obtain a sense of the overall management program that has been designed for the King Range National Conservation Area. Some summary generalizations and simplifications may be of value in advance of considering plans for individual zones:

- It is a zoned plan, developed around seven primary or dominant use zones. Yet, it is a multiple use plan, not only in the summation of the zones but within zones. Secondary uses are permitted that do not unduly conflict with primary use objectives. Through closely coordinated management many secondary uses can be accommodated.
- Tabulating the seven zones, one is devoted to intensive forestry, one for wildlife management and protection, three are recreational ranging from primitive through extensive to relatively intensive type use. Two are residential zones recognizing existing uses and their compatible limits.

- Yet each zone is to be managed for a number of important secondary uses. The forestry zone, for example, has important watershed, wildlife, fisheries and recreational programs. Watershed actions, livestock forage, and fisheries improvements are in fact each prescribed as secondary actions in three zones. Actions that are primary objectives in one zone often appear as strong secondary programs in a neighboring zone. While mineral development potential is low throughout the area and little activity is expected, regulations have been prepared that provide a high degree of control and environmental protection. West slope zones call for virtual exclusion of mineral development except for limited non-mechanized exploration. Other zones permit development under careful controls. Table II at the close of this section arrays the primary and secondary land use allocations by zones.

- In terms of resource use outputs within five years of implementation, the proposed program will produce 1.9 million board feet of timber annually, yield 1,222 animal unit months of sheep grazing, clear 35 miles of blocked fisheries streams, reintroduce the Roosevelt elk to the area, provide protection to numerous threatened or scarce wildlife species while studying their distribution and habitat needs, restore nearly 1,800 acres of seriously disturbed watershed thus improving much more of the adjoining watershed, and provide a wide range of high quality extensive recreation for some 97,000 visitors annually.

- These actions and outputs are not implemented as a multiple use showcase, however. Each has its place in achieving the KRNCA objectives. All are closely interrelated and coordinated to minimize conflicts and take advantage of complementary opportunities. For example, livestock grazing, watershed, wildlife and fisheries programs are related well beyond tradeoff and conflict considerations. All of the involved resource specialists worked together very closely in planning and program design. Animal unit month forage needs for both sheep and deer were estimated and management designed to allocate the carrying capacity. Water placements for livestock will redistribute deer from over-used areas, aiding the watershed program. Watershed plantings will often be done in species valuable for wildlife forage. Grazing and wildlife manipulation for watershed purposes contribute to cleaner water in fish spawning streams. An endless list of coordination could be covered on any set of two or more resource programs for the King Range.

- To this coordination must be added the support activities of land consolidation through 17,000 acres of acquisition, mainly through exchanging out of extremely scattered tracts; completion of the second half of an 87-mile road and 97-mile trail system; a protection plan for fire suppression, law enforcement and search and rescue; a new adequate radio communication system where none was available; and finally, identification of public property boundaries.

- External cooperation and coordination sketched in briefest outline involves two counties, four State agencies, two regional commissions, four federal agencies and two local coordinating committees.

TABLE II

ZONE SUMMARY

Zone	Primary Use	Secondary Use	Acres* (Total)	% NRL ** as of 3/1/74
1	Recreation	Wildlife, livestock	3,340	7.7
2	Recreation	Watershed, wildlife fisheries, livestock	23,031	80.2
3	Residential	Recreation	3,507	1.6
4	Recreation (Primitive)	Watershed	3,606	89.0
5	Residential	Recreation	1,276	12.9
6	Forestry	Watershed, wildlife, fisheries, recreation, minerals, livestock	12,047	52.9
7	Wildlife	Fisheries, forestry watershed, recreation	10,458	63.3
		TOTAL	57,265*	61.4

* Acreages include those lands within the proposed KRNCA boundary change.

** National Resource Lands (Public Lands administered by BLM)

C. Area–wide and Multi–zone Actions

Many resource situations and programs prescribed to meet problems or develop opportunities are common to a number of zones within the King Range area. These planned actions and their underlying rationale are discussed in this section with a subsequent treatment in greater depth by specific zones provided where warranted.

Recreation - Several of the zones contain areas which appear to be of historical, archeological, or natural historic interest. These include such items as early settler's cabins, ship wrecks, Indian campgrounds, Indian shell mounds, and areas which have unique values for ecological or biological studies. These have not been sufficiently studied to date to permit implementation of a meaningful interpretative program. Because specialized expertise in these fields is available from other agencies, organizations, or academic institutions, studies will be contracted in the following fields:

(1) Historical significance - The study will include literature search and site surveys.

(2) Archeological values - The study will include surface sampling, test excavation, and analysis and publication of information.

(3) Natural history - The study will include identification of significant natural areas.

A site evaluation document will be prepared to summarize the findings of each of the various surveys.

The Bureau will then contract for design of an interpretive program to make this information available to the public.

Regular patrols for protection of cultural values may be necessary depending on the information gathered by the survey and the amount of visitor use that occurs. A planned full-time administrator and temporary staff will be available for this.

In the event cultural sites are endangered by natural forces, visitor use, or development projects, they will be salvaged or stabilized, whichever is appropriate.

Some activities such as grazing or off-road vehicle (ORV) use may need to be restricted near archeological sites depending on the significance of the values found. Sites to be preserved will be identified with signs and protected with barriers or other appropriate means.

Surveys can begin immediately, but capital for protection or interpretation can be expended only on publicly-owned lands. Since many of the important sites are now on private lands, full implementation must be delayed until these private lands can be acquired.

Cooperative agreements will be developed with various state and county regulatory bodies, if necessary, to obtain and assure public access for recreation use to suitable lands within the Conservation Area.

Wildlife - As previously discussed, the presence of several threatened wildlife species within the KRNCA has been confirmed. However, details on their actual habitat is lacking. Therefore, habitat use by threatened wildlife species will be determined through a contracted study by the California Department of Fish and Game or California State University at Humboldt.

Raptors such as the osprey, peregrine falcon, and southern bald eagle, require areas relatively free from human disturbance to survive. This is particularly critical during nesting. Therefore, raptor habitat identified by these studies will be preserved as follows:

(1) Preserve snags, flat-topped trees, or open-limbed live trees within a two-mile radius of any eagle or osprey nesting site.

(2) Prohibit any disturbance that will result in an increase in human or mechanized activity within a 1½ mile radius of any peregrine falcon cliff nesting site.

(3) Permit no logging, road construction, or intensive recreation development within 700 feet of any raptor nest, except road construction, logging, foot trails and primitive camps can be permitted from August 1 to February 1 within the protection area as long as there is no disturbance to the nest or other trees used by the birds.

(4) Do not allow timber harvest, road construction or recreation development within 1/4 mile of Honeydew

Creek, the Mattole River, Big Finley Creek and Bear Creek until the scope of use by bald eagle and osprey can be determined, except those activities in Zone 6 necessary to salvage timber damaged in the Finley Creek Fire of September 1973 or subsequent major fires.

(5) Reserve the old-growth Douglas fir timber stand in the Honeydew Creek headwaters area until surveys show the importance of habitat for spotted owls, accipiter hawks (Cooper's hawk, goshawk, and sharp-shinned hawk), osprey and bald eagle.

Information signs will be installed at various points in King Range to inform visitors about wildlife species which they may encounter.

Fisheries - Log jams will be removed on 35 miles of streams. The preferred method of removal is with hand labor. California Ecology Corps crews are the least expensive, if available. In most cases, the use of heavy equipment is impractical due to difficulty of access and the stream disturbance caused by such machines. Exposed streambanks will be revegetated in connection with log jam removal.

Removal of log jams will make more of the streams available for spawning by anadromous fish species including steelhead, silver salmon and king salmon and will improve habitat for resident rainbow trout. The log jams are also causing streambank erosion by thrusting concentrated water flows against the banks. The resulting soil loss has contributed to sediment and deteriorated fisheries habitat in the streams. Thus, removal of the log jams will reduce the sediment loads of the streams.

Watershed - As noted in the initial description of the area's resources, over half of the King Range is in a stable condition due to its heavy vegetative cover. Much of the remaining area, especially in logged and roaded areas found in Zones 2, 6, and 7 is undergoing accelerated erosion with a general trend of continued watershed deterioration. Prescribed watershed improvement measures such as waterbarring and revegetation of abandoned roads are aimed at arresting erosion before steep sideslopes are stripped of productive soils to bedrock. Such measures are also directed towards improvement of water quality by reducing sedimentation of streams,thus providing better fishery habitat and improved recreational values.

Forestry - Forests and formerly forested lands capable of reforestation are common throughout most of the zones in the King Range. However, only a portion of the entire area, basically the east slope of the range in Zones 6 and 7, is planned for commercial timber production. Even here, harvesting methods will be carefully designed to meet problems of difficult terrain, erodible soils and the need for basic compatibility with other uses. Partial and selective cut systems are planned for a majority of timber operations. However, small (under 25-acre) clearcuts will be used where terrain and stand conditions dictate. The rather heavily forested but precipitous and erosive west slope (Zones 2 and 4) was considered for timber harvesting under tightly controlled means, including helicopter and skyline logging, but has been excluded from such development after evaluating the need to protect other resource values. These forest areas will instead be managed to hold soil, protect watersheds, provide undisturbed wildlife habitat and serve as a scenic recreational backdrop while contributing to primitive values.

Minerals - Section 6 of the King Range Act recognizes that mining can be a valid activity in the KRNCA, but authorizes management of these activities to ensure they are compatible with the purposes of the Act and with the management program for the Area.

Existing procedures, contained in the Code of Federal Regulations (CFR),covering geophysical explorations and leasing of public lands for oil and gas exploration and production require appropriate terms and conditions to protect the environment. These are adequate to manage these activities and to assure compliance with the objectives of the King Range management program. Similar requirements for environmental considerations are provided for other mineral leasing activities and for saleable or free use mineral materials like "sand and gravel." Copies of the applicable regulations, 43 CFR, Sections 23, 3045, 3109, and 4035, are provided in Appendix M, "Existing and Proposed Mineral Regulations."

On the other hand, locatable mineral activity requires new regulations relating to prospecting, exploration and mineral development and patent. The Act authorizes the Secretary of the Interior to issue such new regulations for administering locatable minerals. A set of draft regulations has been developed to require an advance approval of plans for prospecting, exploration or mineral development so that the District Manager has overall control of resource management in the KRNCA. Furthermore, these regulations will require the posting of a bond before any such activity is authorized. This helps enforce compliance with the conditions and protective stipulations required by the authorization. Compliance is especially critical in this area because of severe erosion potential and other high resource values. These draft regulations generally follow the principles of existing regulations relating to the leasable and saleable minerals. A copy of these draft regulations as published for proposed rule-making is also included in Appendix M to this report.

In some areas where soils are extremely unstable or where aesthetic or other values are very important, any mineral activity will be stringently limited to methods which minimize surface disturbances. For example, the stipulations included in the authorization may limit exploration to non-mechanized means in prescribed areas.

Any newly located mining claims or prospecting activity will be examined during the interim pending issuance of new regulations to assure that all prospecting, exploration and development are carried out consistent with the management program. The locating of "nuisance" claims for recreation cabins or residences will be promptly investigated and appropriate action taken to terminate unauthorized uses. The claimant of all bonafide claims will be contacted and appropriate cooperative arrangements made for protection of surface resources.

The Bureau will work with the owners of the Bear Creek mining claims to develop a cooperative arrangement for rehabilitation of surface damage resulting from previous development of the claims. Such arrangements may involve mutual efforts or activity by the government.

Lands - To preserve aesthetic values, the Bureau will restrict utility rights-of-way to existing locations as much as possible and promote underground installation of distribution and transmission facilities. Unobtrusive location and treatment of overhead lines and station facilities will be sought. To achieve this, the Bureau will cooperate with utility companies in developing a plan to cover route location, type of facility, station siting, future need projections, timber removal, site rehabilitation after construction and other pertinent items.

Future needs for such special land uses as solid waste disposal sites and communication sites on higher peaks will be handled by coordinating with all interested parties and by updating the plan to consider such needs. The same cooperative planning approach, as outlined for rights-of-way, will be used to assure compatibility with the plan and protection of resource and aesthetic values.

Land acquisition, an integral component of the King Range program, while essentially a lands activity, is a support measure and will be discussed as such after first outlining the overall proposed resource management program. Draft regulations to implement the acquisition provisions of the King Range Act are included in Appendix N.

D. Zone 1 — Punta Gorda

The primary use of this zone will be recreation. Most of the recreational activities will involve interest in the lighthouse and use of the beach by hikers and off-road vehicles. The following actions are planned which are compatible with this use.

Recreation - Land will be acquired along the beach, in the immediate lighthouse area, to include the area from the high tide line to the toe of the slope or to the existing road, whichever is further east. Full ownership and control will make it possible to manage use so that conflicts between hikers and vehicle users are minimized, to prevent conflicts with property rights of private landowners, and to protect certain cultural features (e.g. Indian shell mounds).

Access will be acquired by easement within the proposed boundary expansion area between the Mattole River and Punta Gorda and the coastal strip connecting Punta Gorda to the main body of the KRNCA to the south.

To spatially separate competing or conflicting recreational uses and to protect scenic, natural or cultural values, the following areas will be established:

(1) Mechanized use areas (the beach area from the Mattole River to the lighthouse)

(2) A non-mechanized use area (along the beach south of the lighthouse to the northern boundary of Zone 2)

(3) Visual areas

(4) Parking and picnicking and camping areas near the mouth of the Mattole River

(5) Cultural areas

A parking area with water and basic toilet facilities will be developed in the vicinity of the lighthouse to prevent deterioration of the site due to unmanaged use.

Wildlife - Coastal and inland habitat, tide pools, beach, and off-shore rocks will be maintained in their present condition. Non-consumptive uses of wildlife will be encouraged and improved through an interpretive program to identify marine birds, mammals, and tide pool species.

Visitors will be informed through signs and direct contact as to state and federal rules and regulations concerning marine wildlife species. Marine mammals at Sea Lion Gulch will be protected by prohibiting vehicles south of the Punta Gorda lighthouse.

Livestock Forage - A grazing system will be implemented to permit seasonal use (June-Oct.) of 117 animal unit months. This season of use will result in increased vegetative cover. Stock will be controlled by fences which, along the beach area, will be designed to maintain scenic values.

Minerals - Any minerals activity in this zone will be restricted to the degree necessary to fully protect recreational, scenic and natural values.

The abandoned lighthouse at Punta Gorda

Coordination - Fencing sheep from wandering onto the beach is necessary to avoid conflicts with recreational use. Restoration of the old station fence will help preserve aesthetic values. Grazing system implementation will improve a deteriorating watershed condition caused by past overgrazing. Recreational restrictions on vehicle use will help protect tidal zone wildlife and spatially separate conflicting or competing recreational uses. Assistance from the California Department of Fish and Game will be sought for enforcement of marine wildlife protection laws. Cultural and historical preservation and interpretation will involve contacts with the Humboldt County Historical Society, Society for California Archeology and the Northwest Indian Cemetery Protective Association.

E. Zone 2 — West Slope

The primary use of this zone is recreation. The major objective is to retain the wild and scenic values of the steep mountainous slopes facing the ocean and to preserve the unique character of the beach. The following actions are consistent with this objective and will contribute to sound management of the resources of the zone.

Recreation - The present lack of legal public access to portions of this zone, especially along the coast, is limiting recreational enjoyment of the area. Therefore, public access will be acquired for recreational purposes to the following areas:

(1) Beach from mean high tide to the toe of the slope

(2) Spanish Ridge Trail

(3) Saddle Mountain Trail (formerly Coombs Road)

(4) Smith-Etter Road

(5) Coastal Streams

Access alternatives regarding land acquisition versus purchase of easements is discussed in the Support section on Land Acquisition from the perspective of all resource and management consolidation considerations.

The following areas will be established to maintain and enhance the natural character of this zone:

(1) A non-mechanized use area to include the entire beach in this zone.

(2) A limited development area to minimize disturbance to the primitive values that now exist along the beach and slopes facing the ocean.

(3) A visual or scenic area to protect the aesthetic values of the area viewed from the beach and to maintain the unique primitive character of the beach

(4) Cultural areas needed to protect significant cultural values identified by the contracted studies

(5) Areas where existing road and trail use will be permitted

The following recreational facilities will be provided:

(1) Spanish Flat parking and primitive camping facilities

(2) King Crest trailheads

Land will be acquired at the Spanish Flat terminus of the Smith-Etter Road to provide the necessary parking area.

The unused non-historic buildings will be removed on Big Flat Creek and Shipman Creek and the corrals on Spanish Flat after possible historic values are determined by a contract study.

If required as a condition of acquisition, arrangements will be made for life estates with owners of cabins on Spanish Flat and the cabins will be removed when arrangements terminate.

Watershed - The following watershed improvement measures will be implemented to arrest deteriorating conditions:

(1) Provide cross drainage for 10.2 miles of abandoned roads and numerous skid trails. These will be in the form of waterbars and dips placed at intervals to prevent the accumulation of water and subsequent erosion.

(2) Outslope 5.6 miles of abandoned roads to prevent water accumulation and erosion.

(3) Revegetate 1,843 acres of areas exposed by logging with grass or woody plants, depending on soil type or other ground conditions.

(4) Rehabilitate slide areas where artificial or natural means are feasible.

(5) Stabilize 2,533 acres through increased vegetative cover provided by improved grazing management.

Wildlife - The present quality of beach and offshore habitat will be maintained, a Roosevelt elk herd reestablished, deer range improved, raptor cliff habitat maintained, and nonconsumptive uses of wildlife improved by implementing the following programs:

(1) Prohibit public motorized vehicle use along the beach and on west slope roads except the Smith-Etter Road, Telegraph Ridge Road and Saddle Mountain Road.

(2) Inform visitors about state and federal regulations and other information regarding wildlife species through signs and brochures.

(3) Through cooperative agreement with the California Department of Fish and Game, reintroduce and establish a herd of wild Roosevelt elk in the Big Flat area. The elk will be fenced during the introduction period and livestock will be temporarily excluded from the area used by the elk. The reestablishment of this magnificent species in a portion of their normal range will provide an interesting nonconsumptive wildlife resource. Limited hunting may be permitted in the future if a stable herd of sufficient size becomes established.

(4) Cooperate with CDF&G to increase the deer harvest in presently overpopulated areas.

Fisheries - Log jams will be cleared to halt streambank erosion, permit anadromous fish passage, and improve the aquatic habitat on Horse Mountain Creek and Gitchell Creek, as discussed in areawide decisions.

Livestock Forage - A grazing system will be implemented in this zone to permit seasonal (June - Oct.) use of 1105 animal unit months. This number considers the use by wildlife in the area and the effect of grazing on vegetative cover and soil erosion. The grazing system will require the construction of reservoirs and the development of springs in a manner which does not detract from the scenic qualities of the area.

Minerals - Any minerals activity in this zone will be restricted to the degree necessary to protect the zone's primary recreational value and its extremely unstable soils. Authorization of minerals activities such as exploration will stipulate nonmechanized methods in order to minimuze surface disturbance.

Coordination - The livestock forage, wildlife, fisheries and watershed programs are closely interrelated. Animal unit months necessary to sustain the resident deer herd have been estimated and reserved in calculating the capacity for sheep grazing. Restricting domestic grazing to the dormant season will eliminate competition for young growth during a critical deer forage period and encourage increased vigor and reproduction of forage species. Water development for livestock will help to also distribute deer and reduce concentration damage. After elk are established and the herd grows, a reduction in sheep grazing is planned to offset this additional use.

Timber harvest has been excluded in this zone in recognition of the critical watershed problems on its steep, unstable slopes. Tree planting will be undertaken on some previously logged areas for watershed protection purposes, however. The grazing management plan will complement this work by improving vegetative conditions on the grassland portions of the watershed. Improvement of fisheries streams will be closely meshed with watershed improvements.

Recreation use is enhanced by wildlife resources and the plans designed to manage them. However, it also poses a threat to wildlife in the form of possible disturbance, harassment or game law violations. Close coordination with the California Department of Fish and Game will be maintained through both formal meetings and field contacts. Areas of such coordination include the reintroduction of Roosevelt elk, stream surveys and improvements, and protection of marine animals through enforcement of state regulations.

Land acquisition will be needed to carry out a number of programs, especially watershed activities requiring capital investments. Most erosion problems predate state laws governing private land actions through water quality and forest practice standards. Also, the complexity of management involved makes ownership consolidation desirable. Such acquisition will also reduce potential conflicts between recreational users and the property rights of private landowners.

F. Zone 3 – Shelter Cove

The primary use of this zone has been and will continue to be residential. The Bureau plans only very limited acquisition of private lands within the zone because of the extensive subdivision that has taken place. Any acquisition program in this area would be extremely costly because of the many individual property owners (over 4,000), the high land values, and the reluctance of many owners to sell or exchange their property.

Black Sand Beach at Shelter Cove, the southern entrance to the Range.

Recreation - The Bureau's management program for this zone is designed to provide recreational opportunities that are consistent with the primary residential use. To accomplish this, the following actions will be taken:

(1) Acquire public rights-of-way to the beach south of Telegraph Creek to Shelter Cove. Public access to this area is now limited because access to some areas is blocked by private land.

(2) Acquire and develop lands for Black Sand Beach and Point Delgada parking areas to provide a safe place for parking and to minimize conflicts with adjacent private lands. The Black Sand Beach parking area will include an information display board and restrooms.

(3) Develop a north trail, using the existing Shelter Cove Ranchos Road, but closing it to public vehicle use.

(4) Develop a south trail from Little Black Sand Beach along the edge of the bluff to Shelter Cove.

(5) Establish recreation use areas as follows:

    (a) Nonmechanized ocean beach use area (Little Black Sand Beach south to boat launch, approximately two miles)

    (b) Mechanized ocean beach area (Telegraph Creek to Gitchell Creek, approximately three miles)

    (c) Ocean fishing and observation area (Little Black Sand Beach south to boat launch, approximately two miles)

    (d) Visual area (scenic background southeast of boat launch area)

The separation of mechanized and nonmechanized beach use is necessary because vehicles using the beach present a safety hazard and an annoyance to those using the beach for swimming, hiking, sunbathing, etc. Exclusion of vehicles from the nonmechanized use area will also reduce conflicts with the private landowners of the Shelter Cove subdivision.

The existing boat launching area will continue to be privately owned and managed. Because nearly all lands in this zone are privately owned, limited acquisition of selected parcels or easements will be required before the proposed management program can be implemented.

Coordination - Carrying out the proposed recreational program will involve cooperation with private owners such as the operators of the resort and camping area at Shelter Cove; the Humboldt County Resort Improvement District in regard to planned access; the state or local agency with responsibility for enforcing use controls on state lands between mean low and mean high tides; and Humboldt County regarding sanitation standards and public road access. The California Coastal Zone Conservation Commission will also be involved in clearance of BLM construction activities planned near the beaches.

Enforcement of state and local laws on public roads or private lands within the subdivision will remain the responsibility of local or state law enforcement authorities such as the county sheriff.

G. Zone 4 — Point No Pass

The primary use of this zone is recreation. The major objective is to preserve the primitive qualities of this zone.

Recreation - This area will be managed to provide opportunities for solitude. Extensive recreation uses such as hiking and primitive camping will be encouraged, but no camping facilities will be provided within the zone.

The present trail system through the area will be realigned near the crest to provide better views of the ocean. Extension of the present trail system to permit connection with possible future trails in the proposed Bear Harbor State Park to the south of Whale Gulch, as well as alternative loop routes within the zone, will be studied and surveyed.

Self-guided interpretive walks will be developed between neighboring campgrounds and the Chemise Mountain segment of the present King Crest National Recreation Trail System.

Watershed - Since the present watershed condition is satisfactory, no specific program is required. However, rehabilitative measures may be required in case of fire or other disturbance of the vegetative cover.

Forestry - No logging will be permitted. This prohibition includes salvage logging of burned areas. However, limited actions to control insects or disease may be allowed if other commercial forest lands are threatened and the action will not significantly detract from the primitive qualities of the zone.

Lands - To protect its primitive qualities, the zone will be officially designated as a primitive area. All private lands in the zone are programmed for acquisition to prevent future logging, subdivision, or other incompatible uses.

Minerals - Development for mineral production involving surface disturbance is not compatible with the maintenance of primitive values in this zone. Information gathering through prospecting and exploration may be permitted under tightly stipulated conditions including restriction to use of nonmechanized means. However, any proposed development that risks degradation of natural values will not be permitted.

Coordination - No direct resource management program conflicts are evident in planned activities. The basic coordination area will be between forestry and recreation managers in the event a disease or insect epidemic were to become imminent within the zone, threatening surrounding forest lands. External coordination will be needed with the California Division of Forestry. This is covered in more depth within the section on fire protection support. Also, there will be need for coordination with the California Department of Parks and Recreation in regard to their plans for the recently proposed Bear Harbor State Park immediately to the south of King Range.

H. Zone 5 — Whale Gulch

The primary use of this zone is residential. Most of the lands are now owned by a number of private individuals and there are a number of full-time residents.

Lands - No acquisition is presently planned in this zone. However, if properties become available that are contiguous to national resource lands and useful from an ownership consolidation and resource management aspect to contribute to KRNCA objectives, some private holdings may be acquired. If private lands are acquired, they will be managed to prevent deterioration of the watershed and may be used for possible expansion of the Primitive Area in Zone 4.

Coordination - The major coordination needs will be external. Close communication will be maintained with the California Department of Parks and Recreation regarding development of the recently proposed Bear Harbor State Park immediately to the south of King Range as it relates to BLM development and management within the KRNCA. Communication with residents of Whale Gulch and the government agencies of Mendocino County and the California Coastal Zone Conservation Commission will be maintained in regard to avoidance of noncompatible use developments on private lands within the zone.

I. Zone 6 — Bear Creek

The primary use of this zone is intensive timber production. The objective is to maximize timber production while managing the forest and other resources on a sustained yield basis. Actions consistent with this objective will be taken as follows:

Forestry - Inventory data shows an annual allowable cut potential of 1.9 million board feet (Int. 1/8" scale)* from BLM lands in Zones 6 and 7 combined.** This volume for the first five years will be taken from the Bear Creek Zone.

Within the total area in both zones planned for commercial timber production, cutting practices and logging methods will be designed to match terrain, soil and stand conditions. As noted earlier, approximately 60 percent of all timber harvest area will be harvested by partial cutting or selective systems. The remainder will be logged in small clearcut units not to exceed 25 acres in size. Specific equipment to be used ranges from tractors on gentler slopes to highlead cable methods in steeper areas. In some areas where minimization of soil disturbance is especially important, elevated skyline or helicopter logging is planned.

Other projects planned for the first five years are:

(1) Planting trees on 440 acres. In addition to this, cutover private lands will be planted as they are acquired.

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* A standard industry measure reflecting current sawtimber utilization standards; e.g. 1/8" width saw kerf.

** 2.4 million board feet when both BLM and private forest lands are considered.

(2) Hardwood-brush conversion and planting 320 acres

(3) Precommercial thinning - 50 acres

(4) Multi-purpose road construction - 8.0 miles

(5) Timber sale road construction - 16.7 miles

Projects for planting, stand conversion, and road construction may be altered if significant fires occur.

Watershed - This zone has some of the most serious watershed problems in the KRNCA due to past logging and road building, primarily on private land. To improve present conditions and halt continued deterioration, the following measures will be taken;

(1) Provide cross-drainage, outsloping, seeding and fertilizing of 190 miles of logging roads and skid trails to stabilize 658 acres of seriously disturbed watershed now producing 13 acre-feet of sediment annually.

(2) Improve drainage on approximately 6 miles of existing road by installing additional culverts and downspouts and seeding cutbanks.

(3) Rehabilitate small slide areas that can be treated by revegetation in conjunction with the correction of related road drainage problems.

(4) Reduce numbers of livestock on grasslands in the Paradise Ridge area to eliminate overuse resulting in loss of vegetative cover and soil erosion on 316 acres.

(5) Cooperate with owners of Queen Peak Mine on the Bear Creek claims to arrest erosion of the mining area by providing better cross-drainage and revegetating disturbed areas.

Vegetative buffers will be left along streams during timber harvest operations and waste material will be end-hauled in road construction to keep this material from entering streams in order to protect water quality.

Livestock Forage - Paradise Ridge is the only area in Zone 6 used for livestock grazing. Vegetative conditions are presently deteriorating due to competition between livestock and wildlife. Livestock grazing will be reduced until vegetative conditions have improved enough to support both wildlife and livestock without contributing to the previously noted watershed problem.

Wildlife - Wildlife habitat improvement and stand conversion projects in this zone will provide additional wildlife forage and open more area for hunting, making the clearing of travel lanes unnecessary.

Hunting and nonconsumptive wildlife uses will be increased in the Queen Peak area by improving the existing jeep road. Since this road is also needed for timber harvest and recreation access, a multi-purpose road will be constructed.

A test controlled burning and reseeding study project will be conducted in a 64-acre stand of dense, tall chaparral brush and hardwoods within this zone. Safe, successful results could permit other heavy brush areas to be converted to better wildlife habitat and forage conditions.

Fisheries - Log jams blocking anadromous fish runs in the Bear Creek Drainage will be cleared using the least damaging method, hand labor, through a source such as the Ecology Corps, if available. Where possible, angler access will be concurrently improved along streams by removing barriers to foot travel.

Stream sedimentation will be curtailed by close control of logging and road construction as well as the watershed rehabilitation previously outlined.

Recreation - Public rights will be acquired for recreation purposes through rights-of-way in the South Fork Bear Creek and Paradise Ridge areas and by cooperative hunting agreements in the Paradise Ridge area.

The following recreation use areas will be established:

(1) Road and trail area - Existing roads and trails in the Queen Peak-Paradise Ridge area will generally be left available for trail bikes and four-wheel drive vehicles. However, areas showing serious erosion due to vehicle use will be closed and rehabilitated. These may be reopened later if management of use, such as wet weather closures, will prevent further erosion.

A trail connecting Wailaki campground with Tolkan campground will be developed along Bear Creek.

(2) Camping areas - The present campground areas will be maintained at their present standard except for the development of a water system for Tolkan campground. Additional expansion is not necessary at this time. The potential recreation site at Nooning Creek will be reevaluated following salvage operations in the area burned by the Finley Creek fire in September 1973.

Buffer areas of 1/4 mile around recreation sites and 200 feet along recreation roads and trails will be established, in which timber harvest is restricted to selective cutting only and other activities are restricted to maintain scenic values in this zone.

Lands - As a support function, over 4,317 acres of private lands, much of it logged over, but capable of intensive sustained yield timber management, are planned for acquisition to consolidate ownership, facilitate forest management and permit important investments in watershed, fisheries and wildlife habitat improvement.

Coordination - Forest management within this zone requires close coordination with other resource uses. Buffer strips of uncut or selectively harvested trees will be left along streams, along major roads, and around campgrounds to protect fishery, watershed and aesthetic values. Logging and road construction will be closely administered to keep erosion minimal. Timber harvesting generally improves wildlife habitat by increasing forage growth and edge effect. However, special care must be taken to leave nesting trees, snags and adjoining habitat for raptors. For example, one osprey and one golden eagle nest have been identified in the Big Finley Creek-Mattole River area of Zone 6.

Mainline hauling roads will be designed to safely accommodate recreation travel.

The watershed improvement program will be closely meshed with grazing management and wildlife habitat improvement projects (e.g. the controlled burning study), as well as the fishery habitat improvement projects. Revegetation for soil stabilization will be done with species of value to wildlife, where possible.

As a matter of outside coordination, the California Department of Fish and Game will be asked to institute antlerless deer seasons in the Area for the harvest of populations found to be in excess of carrying capacity.

J. Zone 7 – Honeydew Creek

The primary use of this zone is management of wildlife habitat. The major objective is to preserve and enhance wildlife habitat in the zone with particular emphasis on diminishing, threatened, or potentially threatened species such as the spotted owl.

Wildlife - To meet the management objective of this zone, the Bureau will maintain the old-growth forest habitat at the head of Honeydew Creek by excluding timber harvest, road construction, vehicle use or intensive recreation development until the extent of spotted owl, red-back tree mouse, osprey, accipiter hawks, bald eagle, flying squirrel, cougar and black bear dependency on this forest habitat can be ascertained. A full inventory will be conducted to verify the presence and extent of habitat use by these species.

Hunting and nonconsumptive uses of wildlife in this zone will be improved by obtaining public access over the Smith-Etter Road. Physical access will be provided for hunter and wildlife observation use by completing 16 miles of 10-foot wide brush openings and 1¼ miles of forest trail openings 6 feet wide; opening 6 miles of road for four-wheel drive use; and redesigning one mile of existing road for use by all classes of vehicles.

Brush openings developed for wildlife observation will be reseeded with suitable forage vegetation.

The Bureau will consider controlled burning for brush control and/or brush conversion reseeding on selected sites after evaluating the burning trial study planned in Zone 6.

Fisheries - Objectives and planned actions are similar to Zone 6. Log jams causing erosion and blocking anadromous fish passage on streams within the zone will be cleared, preferably by hand labor through the Ecology Corps, if possible. Fisherman access obstructions along streams will be concurrently cleared where feasible.

The watershed and forestry program will be relied upon to reduce sedimentation reaching stream courses.

Forestry - As previously noted, timber inventory data shows an annual allowable cut potential of 1.9 MMbf (Int. 1/8" scale) from BLM lands in Zones 6 and 7 combined. However, no timber sales are planned for the first 5 years in Zone 7 so wildlife indigenous to old-growth stands may be inventoried to determine the presence and extent of habitat use. This inventory will provide additional management guidelines for the various resource activities. As old-growth stands in Zone 7 represent less than 10 percent of the overall allowable cut potential, a downward adjustment can easily be made in the average annual timber harvest if subsequent wildlife inventories indicate a need to preserve these stands as habitat.

Timber management projects in Zone 7 for the first 5 years will be limited to:

(1) Hardwood-brush conversion and planting - 80 acres.

(2) Multi-purpose road construction - 2.5 miles.

(3) Plant trees on cutover private lands as they are acquired.

Watershed - The present conditions will be improved and further deterioration will be prevented by taking the following actions:

(1) Provide cross-drainage, outsloping, seeding and fertilization of 156 miles of logging roads, skid trails and other roads now constituting 535 acres of severely disturbed watershed.

(2) Reestablish forest on 274 acres of forest soils converted to grass by logging, burning and repeated sheep grazing, fencing out this area from grazing during the reforestation project.

(3) Improve drainage on approximately 16.4 miles of maintained roads by installing additional culverts and downspouts and seeding cutbanks.

(4) Rehabilitate and restore vegetative cover on 2.4 miles of abandoned roads.

(5) Rehabilitate small slide areas which are feasible for treatment.

Recreation - Public rights will be acquired for recreation uses on the Smith-Etter Road, including the part outside the King Range boundary, the Telegraph Ridge Road, and for extension of the Lightning Trail down Honeydew Creek.

Cooperative agreements will be developed to provide public hunting on private lands in the Bear Trap Ridge and Moorhead Ridge areas.

Existing roads will remain open for recreation vehicle use. However, if a road is or becomes seriously eroded, it will be closed and revegetated. These roads may later be reopened if use can be managed to prevent further erosion through such means as season of use restrictions.

The extension of the trail down Honeydew Creek is a possibility that will be considered in the future if increased recreational use creates a need.

Recreation facilities to be considered for this zone are toilets and garbage containers at areas of concentrated use.

Buffer areas 200 feet wide will be established along recreation roads and trails in which timber harvest is restricted to selective cutting only and other activities are restricted to maintain scenic values.

Hiking the King Crest Trail.

Lands - Approximately 2,912 acres are planned for acquisition in this zone to consolidate ownership and provide more efficient resource management while permitting the type of investments needed to achieve plan objectives. Most of the lands to be acquired are logged over, often brush covered, with potential for intensive forest management or wildlife habitat conversion while correcting critical watershed problems.

Coordination - The basic internal coordination step is between the forestry and wildlife programs, with forestry delaying cutting in the zone for five years to allow completion and evaluation of an intensive wildlife inventory in the old-growth forest habitat. Some road and trail development will similarly be postponed. Other coordination will involve the complementary interrelationships of watershed revegetation,designed to also increase wildlife forage,and wildlife brush conversion projects,also capable of improving watershed values. Fishery improvement will similarly rely on actions taken in the forestry and watershed programs.

Primary external coordination will be with the California Department of Fish and Game. Cooperation will be sought in obtaining the proper hunter harvest of deer to maintain populations within the area's carrying capacity.

K. The Support Activities

This section summarizes the actions that are needed to support implementation of the resource management plan. In some cases, it provides more comprehensive treatment of support actions touched upon briefly in the preceeding zone summaries. Other support activities, not previously identified, are also treated in this section.

1. Land Acquisition

The King Range Act authorizes acquisition of private lands that are "desirable for consolidation of public lands within the Area in order to facilitate efficient and beneficial management of the public lands or otherwise to accomplish the purposes of this Act."

This provision traces back to the 1961 recognition by Congressman Clem Miller of the desirability of transferring widely scattered tracts of public land throughout Humboldt County to private ownership in exchange for private lands within the King Range, the central focus of BLM administration in the county with 56 percent public land ownership. This consolidation effort, originally sought in Miller's H.R. 6793 during the 87th Congress, the predecessor to the present Act, was aimed at improving management efficiency for all owners.

The land acquisition program was actually begun in 1972 when it became apparent that activities on private lands such as additional subdivisions and logging were imminent. Such actions threatened to detract significantly from the values of the Area and limit management opportunities.

Criteria were established for the acquisition program, delineating eight priorities. The highest priority was given to acquisition of those private lands near the ocean on which logging or subdivision appeared to be imminent. Although the acquisition program is directed toward the higher priority tracts, some necessary but lower priority lands are being acquired from owners willing and able to quickly consummate exchanges.

The land acquisition effort is an especially critical support activity for implementation of the proposed King Range National Conservation Area management program as much of it relies heavily on consolidated management efficiencies and BLM tenure to permit capital investments in land management.

For discussion of the acquisition program, the Area can be divided into two general areas: (1) the western slopes generally facing the ocean (Zones 1, 2, and 4) and (2) the east slopes generally facing inland (Zones 6 and 7). No major acquisitions are planned in Zones 3 and 5.

In the first category, the emphasis is on providing public access to and enjoyment of recreational lands within these zones and minimizing conflicts between the public users and the rights of private property owners. Another primary objective of the acquisition program in these zones is to prevent uses that would be incompatible with the unique values and management objectives for this area. Other lands must be acquired to permit implementation of specific portions of this management program where capital investments must be made or where large consolidated blocks of public ownership are needed.

In the east slope, inland portion of the area, the emphasis in the acquisition program is on consolidation of land ownership for more effective resource management. For example, a long-term sustained yield forestry program is complicated where ownership is highly fragmented. Stream clearing and watershed rehabilitation are not effective unless all lands contributing to the problems can be treated in a coordinated manner. Lands must also be acquired where capital investments must be made and so that competing resource uses can be managed. For example, livestock grazing must be restricted where it is causing deteriorated wildlife habitat conditions. Consolidated ownership also makes management of recreational uses more effective because people can know when they are on national resource lands.

Exchanges are generally favored over purchase as a means of acquiring private lands within the KRNCA because such exchanges help solve two management problem situations simultaneously. Widely scattered lands are difficult and more expensive to manage than blocked ownerships. Savings in exchanging scattered tracts for blocked ownership include reduced travel costs, less access acquisition expense and other resource management efficiencies. In addition to such basic advantages, exchange acquisition requires considerably less direct budget cost than does direct purchase of lands.

With 3,668 acres of private lands acquired through March 1, 1974, there are now 20,104 acres of privately owned land remaining within the boundaries of the KRNCA, as compared to a total 54,199 acres of all ownerships. The acquisition program is scheduled to be essentially completed by the end of fiscal year 1978, when a total of approximately 6,500 acres will remain in private ownership. These remaining private lands will be primarily concentrated in Zones 3 and 5. Any significant change in the acquisition program will require extensive revision in the plan due to the involvement of resource management investments which require assured land tenure.

A summary of the acquisition program by year is given in Table 3. As previously discussed, acquisition will largely be accomplished by exchanging scattered national resource lands in Humboldt County outside of the KRNCA for private lands within the Area. Exchanges are made on the basis of equal values; however, cash payment may be made by either party to equalize values, provided that the acquisition payment may not exceed one-third of the appraised value of the more valuable parcel. In total, national resource lands worth approximately $7,500,000 are expected to be exchanged for private lands worth approximately $6,650,000, with the difference being made up by cash payments to the government.

Table 3

Fiscal Year	Acres to Be Acquired	Acquisition Costs*		Total Acquisition Costs
		LWCF**	BLM	
Thru 1973	1,434	$374,000		$374,000
1974	6,007	394,000		394,000
1975	8,511	221,500	$31,000	252,500
1976	820	116,000	27,000	143,000
1977	214	100,000	39,500	139,500
1978	209	-	69,000	69,000
1979	-***	-	58,000	58,000
1980	-***	-	32,000	32,000
Total	17,195	$1,205,500	$256,500	$1,462,000

* includes administration, appraisals, equalization payments, purchases involving $284,000, $570,000, $182,000, $400,000, respectively. A 5% annual cost inflation factor is included

** Land and Water Conservation Funds are being provided to cover tracts with significant recreational values that have been cleared through the Bureau of Outdoor Recreation.

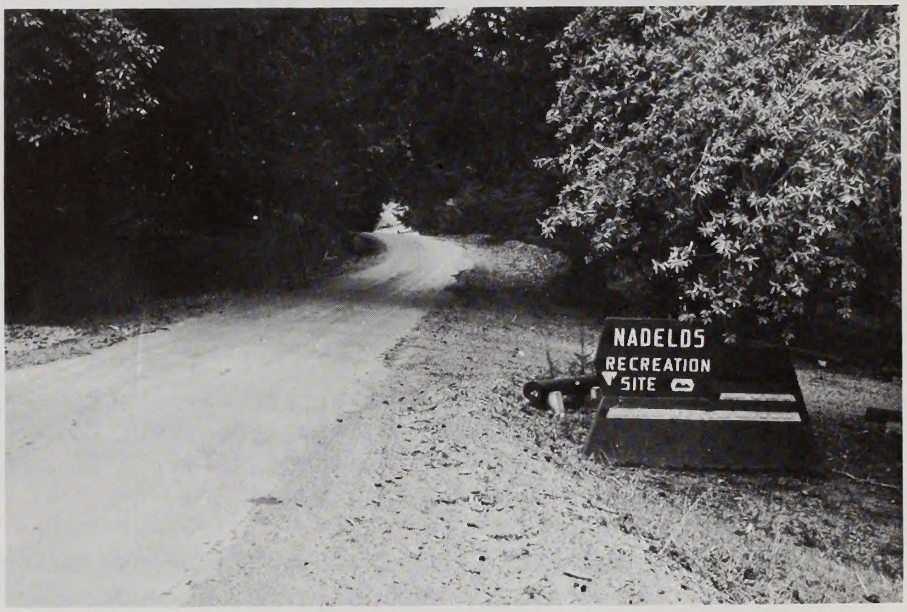
*** No acres planned at this time, but limited funding is programmed to cover any carryover and reappraisal or renegotiation costs due to schedule delay.

As indicated in Table 3, total land acquisition costs fall within the $1.5 million ceiling set by Public Law

91-476. Further information and analysis of the acquisition program are included in the Coordinated Activity Plan document and Appendix C, Land Acquisition Analysis.

2. Transportation

A road and trail system is necessary to implement portions of the management program. The major existing roads and trails, and those identified as being needed within the first five years the plan is in effect, are shown on the zone maps at the close of this report. Precise locations of the proposed roads have not been surveyed and marked on the ground, so some changes in proposed routes may be required after further engineering and environmental studies are made.



Narrow, quiet roads lead the traveler through the King Range.

Presently there are 50 miles of existing road within the King Range. While 60 percent of this total mileage is currently under BLM control, only 13 miles meet present BLM standards. There are 48 miles of trail now traversing the area, primarily constructed by BLM.

Projected additional road construction needs total 37 miles with varying amounts of improvements needed on nearly 30 miles of the existing road system. Some 49 miles of new trails and improvements on 28 miles of existing trails are planned to complete the trail system. Existing access acquisition authorities and those provided under the King Range Act are adequate to cover situations where projected roads or trails cross private ownerships not planned for acquisition through exchange or purchase. Easement acquisition costs and manpower are included as a part of the roads and trails program.

More detailed treatment of the road and trail system is provided in Appendix H, the Transportation Plan.

3. Protection

Fire - Wildfire is an ever-present danger. Even as this plan was being prepared, over 13,000 acres of land, including 3,600 acres of BLM land, were burned in one fire in the area. Protection is provided by the California Division of Forestry under a long-standing contract. Our study of fire protection needs analyzed the existing situations, the risks and hazards anticipated when the plan goes into effect, and the fire protection measures possible. A major feature of the resulting fire plan requires the BLM District Manager's approval prior to using mechanical equipment on the steep damageable slopes of the westside area in Zone 2 and in the Zone 4 primitive area. Mechanized equipment will be used only in extreme emergencies and then with close on-the-ground supervision. Helipads will be constructed at strategic points to permit quick initial aerial/ground attack to stop fires while small.

Law Enforcement - The Mendocino and Humboldt County Sheriff's Departments are the primary law enforcement agencies for their respective jurisdictions within the King Range National Conservation Area. Wardens of the California Department of Fish and Game enforce fish and game laws in the Area. The California Highway Patrol has a primary duty of traffic law enforcement on state highways but could respond in an emergency if a sheriff's office requests help.

Fire protection and law enforcement on private lands within the KRNCA will remain the responsibility of local authorities. However, the Bureau will coordinate its programs to the extent possible with those of local and state protection and enforcement agencies.

Search and Rescue - County sheriffs in California are designated as search and rescue coordinators in each county. Both Humboldt and Mendocino Counties have organized search and rescue units as well as a cooperative agreement for joint operations. Designated BLM personnel assigned to KRNCA will be trained in search and rescue techniques to be available to provide assistance in such operations within the KRNCA.

4. Communications

In a time when instantaneous worldwide communication is possible, this kind of service is not available in remote areas such as the King Range. An analysis was made of communication needs, taking into account possible search and rescue operations and long-range management needs. A radio system will be installed to link the Ukiah District headquarters, the proposed King Range administrative site and the personnel assigned to manage the area. It will be designed to also permit ready two-way communications during emergency operations with county sheriff's radios and the radio system of the California Division of Forestry.

5. Administrative Sites

The Ukiah District Office is over 100 miles from King Range. To effectively manage the intensity of development proposed in this plan, it will be necessary to station personnel closer to the area. Considering travel routes and availability and suitability of sites, as well as proximity to primary management activities, two sites will be acquired and developed for administrative use.

The main administrative site will be constructed in the vicinity of Thorn Junction on the Shelter Cove Road and will be managed by a full-time resident administrator. A seasonally manned visitor contact facility will be developed as a part of the administrative headquarters and will contain exhibits and displays depicting the history, pre-history, natural history and multiple uses of the King Range. This facility will serve to provide information to visitors concerning the King Range Area, its resources and management outdoor recreational opportunities, applicable laws or rules, and any special precautions for safety due to prevailing conditions. Educational publications pertaining to King Range and natural resource management will also be available for sale or free distribution.

The administrative site will also house equipment for maintenance of roads, trails, and recreation facilities and fire suppression equipment in support of its function as resource management headquarters.

The smaller administrative site at Honeydew will be manned during the visitor use season and be designed to function as an unmanned station after hours and during the off season.

6. Cadastral Survey

Effective management requires that the external boundaries of the King Range National Conservation Area and internal property boundaries between public and private lands be accurately located and clearly marked. This will facilitate the Bureau's programs by ensuring that resource product sales or capital improvements are made on publicly owned lands. This will also permit the public to know the boundaries of national resource lands and thus minimize conflicts with the property rights of adjacent private landowners. This is especially important where there will be concentrations of recreational users.

L. Coordination and Cooperation

Coordination and cooperation with other agencies and organizations is critical to the successful implementation of this management program. A number of instances where coordination or cooperation are required have been discussed under individual actions. These include cooperation with the California Department of Fish and Game in the reintroduction of elk and management of fish and wildlife habitats, and coordination with the California Division of Forestry in planning and conducting of fire protection activities.

The Bureau will also coordinate its operations with local law enforcement and search and rescue agencies, as necessary. Plans to provide for utility rights-of-way will be jointly developed with the utility companies. Historic, archeological, cultural, and wildlife studies will be conducted with the assistance of professional and academic organizations. Cooperative arrangements will be developed with various state and county regulatory bodies to obtain and assure public access and recreational use within the Area.

Finally, close coordination with the California Division of Parks and Recreation will be required to mesh with its plans for the proposed Bear Harbor State Park just south of the KRNCA.

There is yet another facet of the King Range setting especially dependent on close coordination and cooperation. A most important area in terms of resources, recreational values, and management objectives, it lies immediately westward of the proposed King Range National Conservation Area boundary. Yet, through jurisdictional complexities it cannot be annexed to the KRNCA. It is an area approximately 30 miles in length beginning at mean high tide, proceeding westward across the beaches and pools of the intertidal zone, through the surf and on past outlying rocks into the Pacific Ocean to the limits of clear weather visibility. This area, its sensory qualities, and the forms of life it supports comprise perhaps the outstanding human attraction to visitors of the King Range Area.

The key to its management lies in a web of jurisdictions requiring cooperation and coordination almost equal to the biological dependencies found in its waters.

The wildlife resources of the shore and ocean have already been listed briefly and incompletely. Agency controls have been discussed equally briefly in regard to management coordination within the zones abutting the ocean. A summary of the types of jurisdiction present, their implications for resource management and intentions for BLM cooperation to achieve its management program objectives is in order at this point.

BLM land use authorities end at the mean high tide line. The California State Lands Commission has jurisdiction of the intertidal zone between the high and low mean tide lines. The Bureau plans to develop a cooperative agreement with the State Lands Commission to assure identical treatment of the beach above and below mean high tide in regard to designation of open and closed vehicle use areas or other restrictions. Enforcement of such controls will be worked out through agreements between BLM, the State of California and Humboldt and Mendocino Counties.

Protection of marine mammals and other wildlife along the beach and tidal zone is by the California Department of Fish and Game. BLM will look to this agency for wildlife protection and enforcement in the area.

The mean low tide area to the three-mile limit is controlled by the California State Lands Commission in regard to the ocean floor and its subsurface resources. Beyond the three-mile limit, the Outer Continental Shelf Office of BLM in Los Angeles administers the ocean floor and its subsurface minerals. A check with this office indicated some undetermined potential for oil and gas as well as deposits of phosphorite, manganese nodules and, near river mouths, potential placer gold. The U.S. Army Corps of Engineers administers navigational matters and associated construction in the area. Federal agencies and the State of California are required by law to file environmental impact statements and environmental impact reports, respectively, in advance of any significant operations such as oil and gas leasing or ocean floor mineral recovery. The proximity of the KRNCA and its objectives would be an important factor in such analyses.

The U. S. Bureau of Sport Fisheries and Wildlife, on December 18, 1973 applied for withdrawal of unreserved islands, rocks and reefs from Oregon to Mexico preparatory to establishing a California Island National Wildlife Refuge. A number of these rocks are located off the King Range.

The Coastal Zone Conservation Commission, by state law, has considerable power to control development along California's coastline. The King Range Area falls within the jurisdiction of the North Coast Regional Commission and its planning area encompasses the entire King Range and off-shore state waters. Furthermore, permits from the Commission are required prior to initiating any developments within 1,000 yards inland from the mean high tide line. Close coordination with the commission has been maintained during the planning process and this coordination and cooperation will continue in management of the KRNCA.

Finally, the California Regional Water Quality Control Board - North Coast Region on March 21, 1974 designated the nearshore waters of the King Range National Conservation Area as an Area of Special Biological Significance. The major protective feature of this status is the prohibition of waste discharges that alter the natural water quality within the designated area. Furthermore, this board has adopted the "Water Quality Control Plan (Interim) North Coast Basin (1B)" which prohibits the discharge of wastes from logging, road construction, and associated activities into state waters.

VI. PROVISIONS FOR MODIFICATION

Any land use plan or resource management program must retain sufficient flexibility to respond to changes in resource conditions and usage or broader shifts in priorities and related policies. Although the King Range Act does not specifically identify the mechanics for plan modification or revision, it does require in Section 2(b)(6) "that the plan will be reviewed and reevaluated periodically." Thus the Bureau does not view the management program for the KRNCA as a fixed, final document but rather as a viable working tool that must be monitored and adjusted as necessary to respond to changing conditions.

There are three major categories of potential modifications that will necessitate three different levels of processing needed changes. These include (1) those changes requiring legislative action, (2) those requiring Secretary approval, and (3) those that can be effected by the Bureau with public participation. It is not practical at this time to catalog all possible future modifications by category. The following discussion illustrates some of the types of modifications associated with each category of treatment.

Included within the modifications that would require legislative action are changes in the external boundaries of the conservation area and major changes in concepts, policy, or authorities. The second category, those requiring Secretarial approval, includes such changes as shifts in internal managment zone boundaries or primary uses.

The more operationally oriented modifications will be made by the Bureau with public participation as appropriate. These include such modifications as changes in the level of resource utilization as required by changing conditions and new information as it becomes available. For example, the level of timber harvest may have to be adjusted following the wildlife inventories scheduled to identify habitat needs of threatened or potentially threatened species. Other modifications in this category would include changes in the type or location of developments or shifts in degree of use restrictions based upon experience gained in intensive management of the Area.

VII. THE COSTS TO THE UNITED STATES

A. Budget Costs

Table 4 displays King Range program total budget costs to the United States experienced through the current fiscal year, programmed costs for FY 1975, and a projection of total expected costs for the first five years of full program operation, FY 1976-FY 1980.

In projecting future costs an annual cost inflation rate of 5 percent for manpower and administrative costs and 10 percent for project and construction costs has been used based on current experience.

Table 4

Costs and Manpower to Carry Out Plan by Year
(all costs in $1,000's)

Fiscal year	Administrative & Management	Acquisition[1]	Construction[2]	Total Cost	Equivalent Man-Years
1972	$ 50	$ 30	$ ---	$ 80	4.4
1973	194	344	---	538	11.8
1974	78	394	---	472	8.0
1975	143	252	---	395	10.0
1976 thru 1980	3,495	442	1,903	5,840	81.2
Totals	$3,960	$1,462	$1,903	$7,325	115.4

[1] $1,205,500 through Land and Water Conservation Fund for acquisition of lands having significant recreational values. Remaining $256,500 via BLM appropriation.

[2] Construction costs include only those connected with major capital improvements such as roads and trails, recreation sites, and buildings. Costs of projects closely related to management, such as fences and water developments, are included within the administrative and management costs.

As indicated in Table 4, the $1.9 million estimate for construction costs to date through the next five years falls well within the Act's construction expenditure ceiling of $3.5 million. While much of the basic construction needed is scheduled for the initial five year period, there is an ongoing need for road and trail construction, some recreation facility expansion and a limited continuance of resource project work beyond this point. Such construction is currently estimated at $2.3 million bringing total construction to $4.2 million. Although this estimate is considerably above the Act's present construction ceiling, it would be premature to seek changes in a ceiling that will not be reached until a point five to ten years in the future.

The $1.46 million estimate of total land acquisition costs falls just within the Act's $1.5 million acquisition ceiling. There currently is no clear need to seek an increase in this ceiling as costs could go up or down depending on the final mix between exchanges and purchases or in response to timber market fluctuations. Thus, it is premature to project either the need for or magnitude of a ceiling increase.

Other than the future construction costs beyond the initial five years of the King Range program, expenses will be basically for operation and maintenance. These O&M costs beyond FY 1980 are estimated at $300,000 annually.

Table 5, which follows on the next page, provides a breakdown of costs and manpower needs for the initial five years of full program operation, broken down by major resource programs.

Table 5

SUMMARY OF FY 1976-1980 FIVE YEAR PROGRAM BY ACTIVITY
BASED ON FUTURE COST ESTIMATES 1/
($1,000's)

Activity	Manpower Administrative Costs	Project Costs	Construction Costs 2/	Total Costs	Manpower Needs MM
Lands	687 3/	--	--	687	127
Minerals	13	6	--	19	7
Timber	112	111	422	645	89
Livestock Forage	14	46	--	60	8
Watershed	98	743	--	841	46
Wildlife	219	387	--	606	103
Recreation	336	97	488	921	219
Support, (Cadastral, Communication, Protection, Road Maintenance)	467	198	--	665	198
Road Construction costs allocated to activities other than timber	--	--	422	422	27
Administrative Site, Visitor contact facilities, General Supervision, and Administration	403	--	571	974	150
Totals	$2,349	$1,588	$1,903	$5,840	974

1/ The annual inflation rate was considered to be 5% for personnel and administrative costs and 10% for project and construction costs. Inflation percentages were compounded beginning with the base 1974 cost estimates and assuming the program would begin FY 1976.

2/ Construction costs include only those items in the buildings, recreation and road construction programs.

3/ This includes land acquisition costs.

B. Non-Budget Costs

There are basically two significant nonbudgetary or opportunity costs to the United States in the proposed KRNCA program. One involves the Federal allowable cut capability foregone in the exchange program. The second, is found in the difference between a maximum resource and revenue producing program, within basic environmental constraints, and the balanced multiple use program proposed for the KRNCA with all of its tradeoffs and amenities. The opportunity or nonbudget costs here are not unique to the King Range program. Most are present in all BLM planning and management programs.

The scattered, selected tracts of timber outside the KRNCA planned for exchange into private ownership have a standing volume of 60 to 80 million board feet depending on the parcels finally selected by the owners of the tracts obtained within the KRNCA. This represents a sustained yield annual cut capability of 1.4 to 1.9 million board feet that will be foregone by BLM. While a total of 100 million board feet will be acquired within the King Range, 90 million board feet of this lies on the steep, damageable west slope and will not be available for cutting under the plan. However, the 10 million board feet of harvestable timber and considerable immature acreage that will be acquired in the eastern portion of the KRNCA are estimated to provide an addition to the BLM allowable cut of .5 million board feet, annually. In net effect, a contribution of .9 to 1.4 million board feet of annual sustainable Federal timber harvest valued at $90,000 to $140,000 annually, is foregone from inclusion in future BLM allowable cut calculations. The benefits of this investment are evident in the previously presented discussions of the west slope zones of the King Range.

In the case of resource production foregone due to multiple use management decisions opting for less than maximum production alternatives, timber is the only marketable resource with significant dollar values involved. Under full production consistent with current BLM environmental protection standards, an annual allowable cut of 5.8 million board feet could be sustained within the King Range. Under the plan a total of 2.4 million board feet can be produced annually (1.9 million board feet from present national resource lands plus .5 million board feet from operable private forest lands after acquisition). The net difference of 3.4 million board feet is valued at $204,000 in stumpage revenues foregone annually. This opportunity cost provides protection of critical watershed, streamside buffers to protect fisheries, and other buffer zones and modified harvest methods to maintain aesthetic, recreational and wildlife values.

VIII. ECONOMIC EFFECTS ON LOCAL COMMUNITIES & GOVERNMENTS

The King Range Act requires that the management program include an analysis of the economic effects of the program on local communities and governments. Analysis indicates that the direct economic impacts will principally be limited to a relatively small area in southwestern Humboldt County and northwestern Mendocino County. The communities within the primary influence zone are all small, rural, and unincorporated. They include Petrolia, Honeydew, Ettersburg, Whitethorn, and Shelter Cove with a combined estimated population of 1,215.

The program will also have a more limited effect on a larger area of southwestern Humboldt County, roughly described as the area south of Ferndale and Fortuna and west of U.S. Highway 101. Communities within this area will be most affected by an immediate increase in employment as a result of increased timber harvesting from the public lands that will become private as the result of exchanges and also through increased recreational tourism.

The additional employment resulting from this program due to timber harvest, resource management, and construction projects within the KRNCA over the first five years will be about 40 to 45 jobs. Most of these will be limited to the summer season. The total impact on employment in Humboldt County, including both direct and indirect effects, will be the addition of 54-80 jobs each summer for the first five years of the program. After the first five years, the initial surge of construction projects will be completed and employment from this source will decline. However, this loss will be at least partially compensated for by the additional tourism that will be generated.

The employment impact on agriculture will be negligible. There will be approximately the same amount of forage available after implementation of the program but management costs may increase because of restrictions on season of use

A slight reduction in residential construction within the KRNCA that could occur under the plan will have a very minor negative employment impact. However, outside of Shelter Cove, most structures are small and owner-constructed having little employment impact. This loss will be compensated by the anticipated increased building outside of the Area.

By the fifth year of the managemnt program, 97,000 visitors (145,000 visitor use days) are projected annually in the KRNCA. This represents an increase of 47,000 annual visits (70,000 visitor use days) over the number which is expected without the plan. The increased visitors will be largely recreation oriented. This increase will result in an additional estimated $237,000 being spent within the southwestern Humboldt County area by recreationists and tourists.

The greatest short-term employment increase will result from the land exchanges which will lead to the accelerated harvesting of 60-80 million board feet of timber from the scattered former public lands outside of the King Range which would probably not otherwise have been accessible for harvesting in the near future. From 316 - 560 seasonal jobs, direct and indirect employment, could result from this harvest in each of the next five summers. Most of these jobs will be located outside of the southwestern portion of Humboldt County, but still within the county. The number of additional jobs will drop off sharply after this harvest is completed.

However, as previously noted, there is loss of .9 to 1.4 million board feet sustanined yield annual production in the future from the BLM forestry program in Humboldt County arising from the amount of nonharvestable forest land in King Range secured through exchange for the harvestable tracts discussed above. Compared on the same basis used in evaluating the harvest effect of the scattered tracts, this produces an offsetting reduction of approximately 50 seasonal jobs per year over a number of decades.

Reduction of the five percent of sales value paid the counties on BLM timber sales would amount to only $5,000 to $7,000 per year.

It is important to note that nothing in the program produces a reduction in current employment. There is presently little timber harvest, public or private, in the King Range and the scattered exchange tracts have no present role in the BLM timber sale program county-wide.

Although the land acquisition program is largely based on within-county exchanges of approximately equal value, it will have some impacts on county tax receipts. As in the case of timber related employment, short run impacts appear basically favorable, but these are offset by limited, although longer term reductions in tax revenues.

Overall, the assessment on properties planned for acquisition is approximatley $554,000. Annual tax revenue from this property is estimated at $44,000. However, taxes on public land transferred to private ownership will partially compensate for this revenue loss as shown in the following evaluations.

A measure of the impact of removing this property from the tax rolls is the percentage of the assessment of the properties to be acquired by the government of the total assessment in the districts involved. The districts involved are the Mattole Union Elementary District and the Southern Humbodt Unified School District. The acquisition program could remove $360,100 (6.8%) of the assessment in the Mattole Union Elementary District. This may be compensated for by private acquisition of national resource land in the district. The probable assessment of national resource lands that will become private as a result of exchanges in the district is $593,000. Clearly, there is a potential for a short-term net increase in assessment in the district through KRNCA land exchanges. Most of this selected land has timber stands which would be logged within three to five years after it is exchanged into private hands. Its assessment after removal of timber would be about $17,000. This would mean that if all of these selected national resource lands in the Mattole Union Elementary School District are transferred to private ownership, and logged, the district will lose 6.5% of its property assessment through the acquisition program. Timber taxation in California is by ad valorem property tax with no offsetting yield or severence taxes at this time.

The loss of assessment is not likely to be particularly critical because the tax revenue to the district could be made up by a tax rate increase of $0.094 per $100 of net assessment. The resulting tax rate would be $1.475. This would still be the second lowest elementary school tax rate in Humboldt County. It is significant too that the total property tax rate in the tax district where the BLM would acquire the land has the third lowest rate in Humboldt County.

The southern part of the KRNCA and the adjacent areas are in the Southern Humboldt Unified School District. This is a very large distict with a total assessment of over $22,000,000. The acquisition program would reduce this assessment by about $194,000 (0.9%) with partial offset as a result of former BLM lands entering the tax rolls as a result of exchange transactions.

The gross effects on total assessment in the two special districts in the southern area are also small. Acquisition in the Whitethorn Fire District will reduce assessments by 1.8%. In the Resort Improvement District No. 1 (Shelter Cove), the reduction in assessments will be less than one percent.

Net assessment effects due to exchange offsets cannot be firmly projected for several reasons. The proportion of acquisitions obtained by exchange, rather than direct purchases could vary from projections. Also, lands within one tax district may become exchanged for lands in another district.

The anticipated loss in tax revenues resulting from the acquisition program may be at least partially further offset by increased tax assessments made possible by an expected rise in property values for private lands within or close to the National Conservation Area. The magnitude of the rise in property values cannot yet be determined,but experience elsewhere indicates that the establishment of an area of national significance invariably results in increased property values within or adjacent to the area.

No significant increase in costs to the county governments is foreseen as resulting from implementation of the KRNCA plan with the possible significant exception of road improvement costs. There are three basic county road routes serving as entry ways into the King Range. All are likely to require partial improvements within ten years and more extensive upgrading of standards within twenty years in order to safely handle the projected traffic loads expected under use projections for the KRNCA.

Even without a King Range Program, the Shelter Cove Road will need some improvements during the next ten years. The Honeydew and Petrolia routes would not appear to need upgrading under use projected without development of the KRNCA program. With the program they would require partial upgrading in ten years and more extensive improvements in standards within twenty years.

Road construction costs are expensive and difficult to realistically forecast over a 20 year period. There are alternatives to increasing road standards that are logical to consider at a future date when trends are better established. One is the use of some form of public shuttle bus service along the lines now being used in Yosemite National Park. Such a system may, under heavy use conditions, prove to be a desirable alternative on both economic and visitor management - environmental protection grounds.

There will probably be an increase in calls to the sheriffs as greater numbers of recreationists use the area, but when viewed in the context of the sheriffs' county-wide responsibilities the impact will be small. Need for a scheduled sheriff patrol in the KRNCA, requiring an additional officer, is a future probability. The mitigating measures called for in the protection section of the plan limit this cost to the county. The county facilities for transportation and solid waste disposal are adequate, at least for the program's initial years. Other types of county services are not expected to be affected by the plan.

IX. PUBLIC PARTICIPATION AND INTEREST

Section 3 of the King Range Act provides that public and private assistance shall be used to prepare a management program for the area. Formal public involvement began with the formation of two advisory committees in the summer of 1972 before actual planning was initiated. One committee was composed of members of local communities and represented such interests as local landowners, ranchers, businessmen, recreationists, and conservationists. The other committee was composed of representatives of public agencies directly or indirectly involved in land use. The agencies were:

U. S. Geological Survey
U. S. Bureau of Sport Fisheries and Wildlife
U. S. Bureau of Outdoor Recreation
U. S. Soil Conservation Service
California Department of Water Resources
California Department of Fish and Game
California Department of Parks and Recreation
California Division of Forestry
Humboldt County Board of Supervisors
Mendocino County Board of Supervisors

A total of eight meetings were held with these coordinating committees at numerous stages of plan development. Throughout the planning process the Bureau has also been in contact with the California Coastal Zone Conservation Commission and the Humboldt Bay, Harbor, Recreation and Conservation District.

The King Range plan was presented in draft form at a meeting of the BLM California State Advisory Board in a Sacramento session attended by members of the public and other agencies. A field tour of the KRNCA was conducted for this Board in September, 1973. This advisory board subsequently passed a resolution supporting the proposed management program.

Five public meetings were held in the local area in April and May, 1973 during the early formulation phase of the general plan. At these meetings, initial Bureau management recommendations were presented and comments and recommendations were solicited from the general public. Attendance at these meetings ranged from 15 to 120. Many individuals expressed strong feelings on a wide range of specific issues. The major controversies that arose centered around recreational vehicle use, particularly along the ocean beach, and whether or not the Bureau's recommendations were sufficently oriented toward preservation of natural values.

These and other major controversies have been discussed previously in Section V.

Following these meetings, the Bureau received 91 individual letters and six petition type letters bearing 181 signatures. Nearly all of these included recommendations on the use or prohibition of recreational vehicles.

Based upon recommendations made by the two coordinating committees, the comments made at the public meetings, and feelings expressed in correspondence, a total of twelve significant changes were made in the initially proposed plan. Details on these adjustments are provided in Appendix F, "Summary of Public Participation and Interest."

Additional public meetings were held in the local area in October, 1973 to present the final planning recommendations for management and to receive any additional comments. No new major issues were raised.

After development of a detailed implementation program for the general land use plan, a summary report was distributed to governmental agencies and members of the public during March, 1974. Copies of all back-up materials were made available for public review at BLM's Ukiah and Sacramento Offices. A final review meeting was held for Federal and State agencies in Sacramento on April 4, 1974. A public hearing was held on April 6, 1974 near the King Range Area in Redway, California with written and oral testimony solicited upon completion of a presentation and question and answer session on the proposed management program. Fifteen individuals presented oral testimony either for themselves or for organizations. An additional 34 written responses were received from individuals, organizations and local government units in the three week period following this hearing. This information was used during the final review of the management program both by the Bureau and the Department of the Interior. As with previous public input, most were concerned with the controversy over use of recreational vehicles on the ocean beach with strong opinions expressed by both opponents and proponents of such use. Concern was also expressed regarding control of hunting and degree of perservation for primitive and natural values. No new previously unconsidered issues were raised.

These latter rounds of public review and input have not resulted in significant changes in the management decisions previously made. They have, however, identified a number of areas where proposed actions needed to be clarified to make them more explicit and understandable. Such clarification has been sought in redrafting the final proposed management program.

X. THE CHALLENGE

The King Range Act may have a significant influence on land management far beyond the King Range itself. This is the first time an area has been set aside by special legislation to be managed for a broad range of balanced resource uses rather than a single purpose use such as recreation or wilderness. The designation as a National Conservation Area emphasizes its importance and focuses public, agency, and Congressional attention on the Area. The publicity and public participation which were a part of the planning process have engendered a general awareness of the values, problems and potential of the Area. Because of this, many people with varying interests will be closely watching the Area and seeking nothing less than full and effective management.

One of the more significant features of the Act is the approach it takes toward private land ownership within the Area. The Act indicates a recognition of the land management problems that fragmented ownership creates. The Act and its legislative history also indicate that the Area should be managed for the broadest range of uses consistent with sustained yield and multiple-use principles, including those which can best be achieved under private ownership. However, to protect the unique values of the Area, the Act gives the United States some authority to control and regulate uses on private land by authorizing acquisition through condemnation where the uses are not compatible with the purposes of the Act. This consideration of uses of private lands is a new role for the Bureau of Land Management and is one that will call for close and constructive cooperation among all involved. Other new authorities granted by the Act provide a more flexible approach to land acquisition and management of mineral resources.

It will be a challenge to the managers of the King Range to use these new tools effectively. The primary challenge, though, will be to carry out the overall intent of the Act - to develop and use the resources of this outstanding area but to balance these uses with the carrying capacity of the land and the preservation of its unique values.

LIST OF BASIC PLANNING DOCUMENTS AND APPENDICES

Because of their number and bulk, a number of documents and appendices have not been attached. Some of them have been reproduced in limited quantity and are available to interested parties. Others are available for public review at the Ukiah District Office, Bureau of Land Management, Ukiah, California, and the BLM offices in Sacramento and Washington, D.C. but no copies have been made for general distribution.

The following three documents are primarily dynamic, working tools. Much of the valuable data they contain is displayed on large maps and map overlays which cannot be reproduced readily. They are subject to change and revision as more information becomes available. For these reasons, it is only possible to get a clear idea of their current content by examining the original material.

> Unit Resource Analysis (URA). This includes the basic resource inventories and descriptions of the present situation and development opportunities for each resource.
>
> Management Framework Plan (MFP). This is the general plan which analyzes the opportunities described in the URA and records the decisions on which of these should be carried out.
>
> Coordinated Activity Plan (CAP). This is the detailed plan, organized by activity, upon which actual implementation is based. It includes details on cost and timing of implementation.

The documents listed below were developed as Appendices to the Coordinated Activity Plan:

Appendix

A. Environmental Impact Statement.

B. Economic Impact Analysis of the King Range National Conservation Area Proposed Management Program.

C. Land Acquisition Analysis.

D. Public Law 91-476, the King Range Act.

E. List of Compatible Uses.

F. Summary of Public Participation and Interest.

G. Boundary Change Recommendations.

H. Transportation Plan - roads and trails needed to carry out the plan.

I. Communication Facilities Plan.

J. Protection Plan - Fire protection, law enforcement, search and rescue.

K. Cadastral Survey Plan.

L. Identification of Management Zone Boundaries.

M. Mineral Regulations
    (1) Regulations Pertaining to: Oil and Gas Leasing (BLM Circular No. 2334).

    (2) Regulations Pertaining to: Leasing of Minerals Other Than Oil and Gas (BLM Circular 2321).

    (3) Draft Regulations for Locatable Minerals within the King Range National Conservation Area.

N. Draft Regulations for Land Acquisition.

For further information on the Management Program or the basic planning documents and appendices, contact either of the addresses below.

District Manager
Bureau of Land Management
555 Leslie Street
Ukiah, California 95482

State Director
Bureau of Land Management
Room E-2841
2800 Cottage Way
Sacramento, California 95825

KING RANGE
tional Conservation
Area

UKIAH DISTRICT
CALIFORNIA

- ZONE BOUNDARIES
- PUBLIC ROAD &/OR RIGHT OF WAY
- PRIVATE ROAD
- B.L.M. ROAD
- B.L.M. TRAILS
- B.L.M. CAMPGROUND
- AIRSTRIP
- **4** ZONE NUMBER

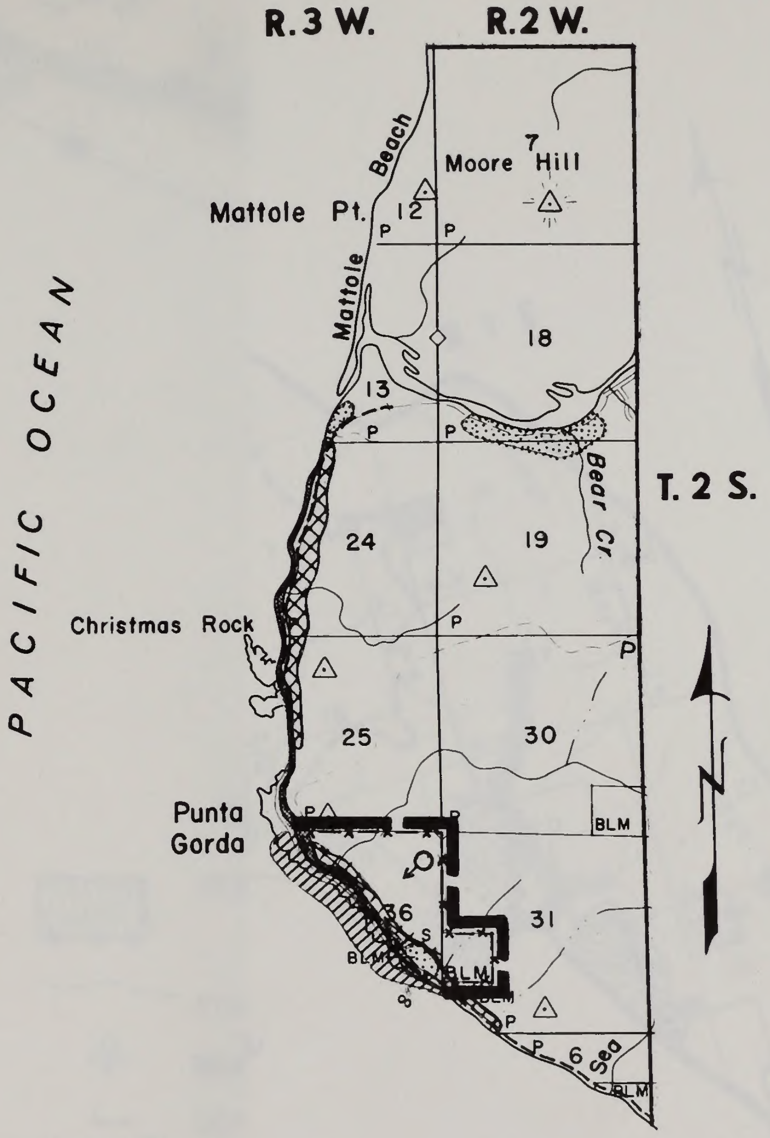
🟨 NATIONAL RESOURCE LANDS (BLM) at passage of King Range Act (10/70)

🟩 ACQUIRED THRU MARCH 1, 1974

🟦 PLANNED FOR FUTURE ACQUISITION

KING RANGE
National Conservation Area
UKIAH DISTRICT
CALIFORNIA

Punta Gorda

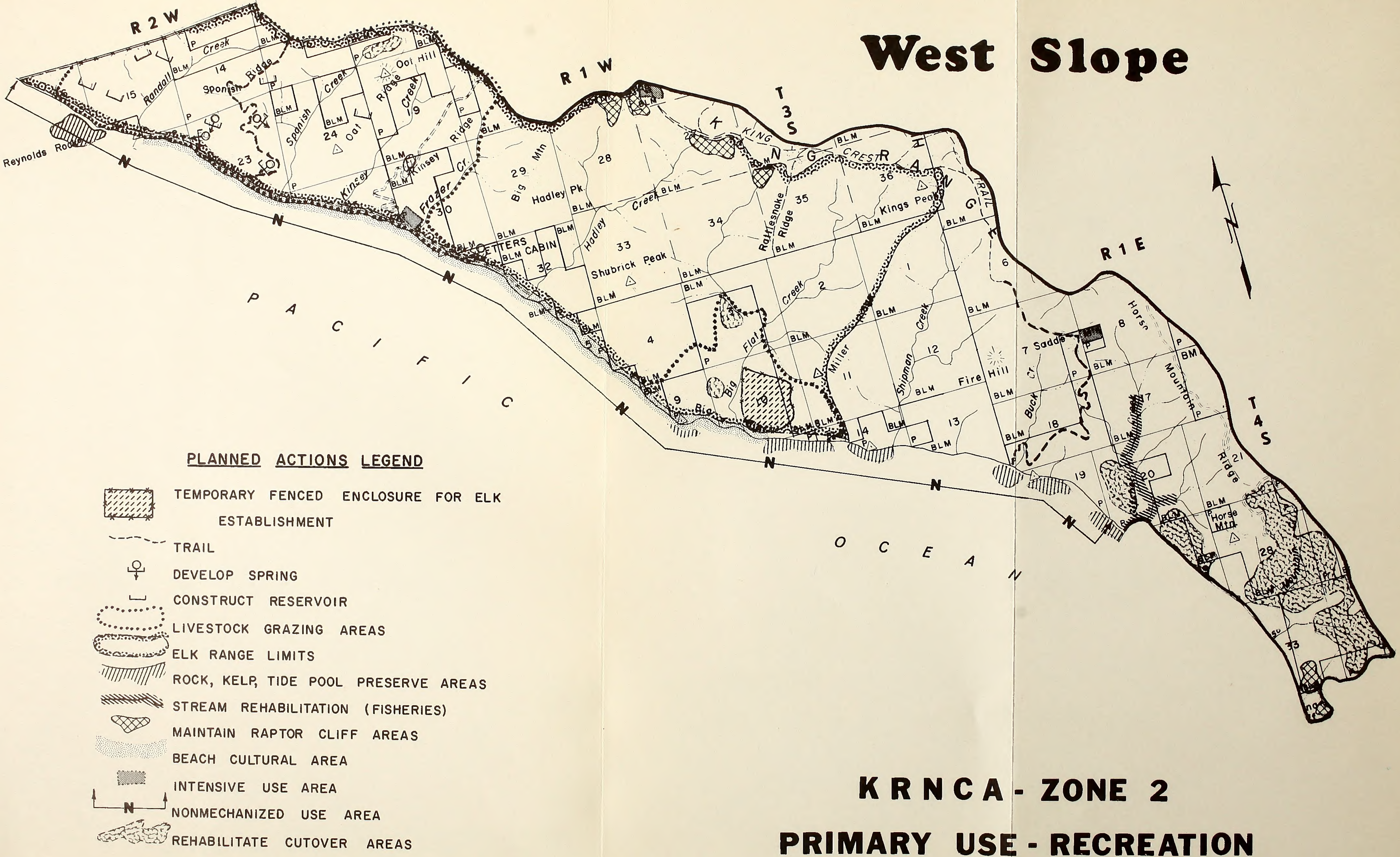


KRNCA - ZONE 1
PRIMARY USE-RECREATION

PLANNED ACTIONS LEGEND

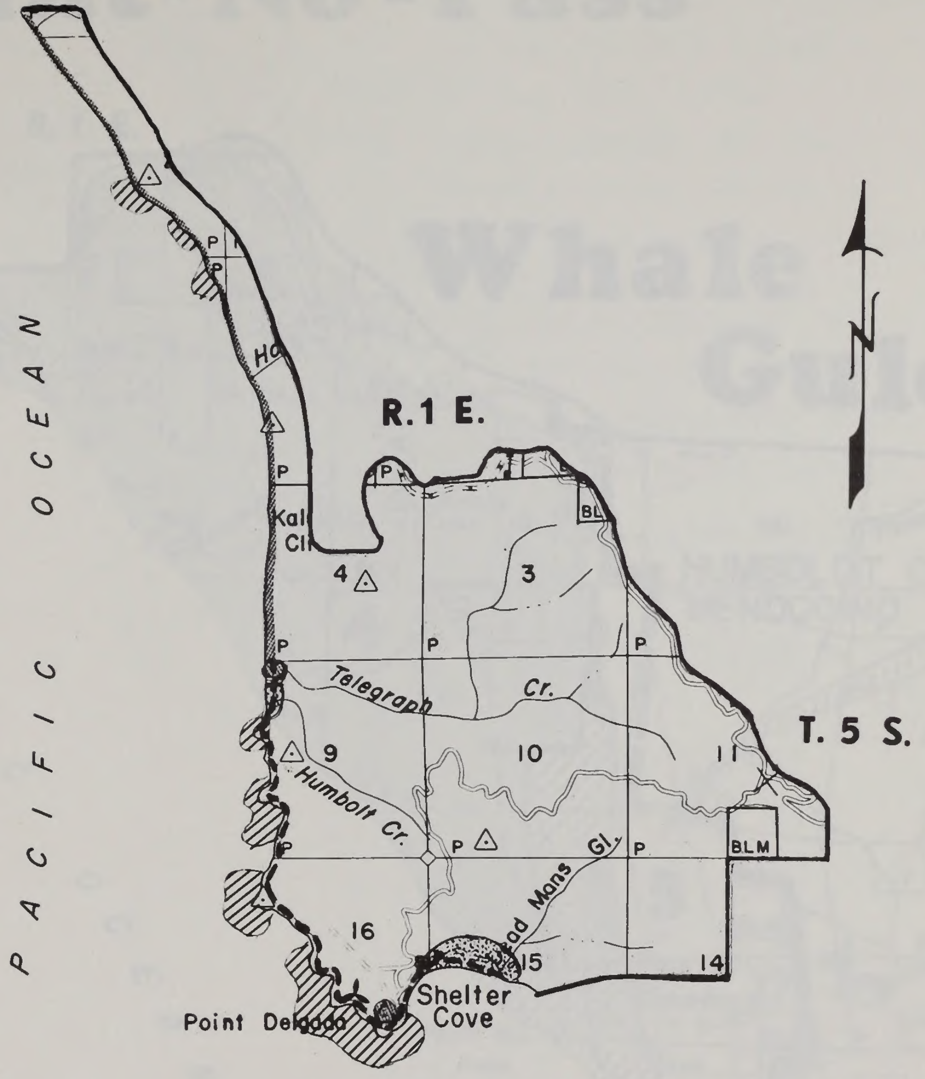
- - - - - -	TRAIL- INCLUDING AREAS REQUIRING EASEMENTS
░	INTENSIVE USE AREAS
▩	CULTURAL AREAS
▬	MECHANIZED USE AREA
▨	PRESERVE COASTAL HABITAT
×—×—×	FENCE CONSTRUCTION
O→	DEVELOP SPRING

West Slope



KRNCA - ZONE 2
PRIMARY USE - RECREATION

Shelter Cove



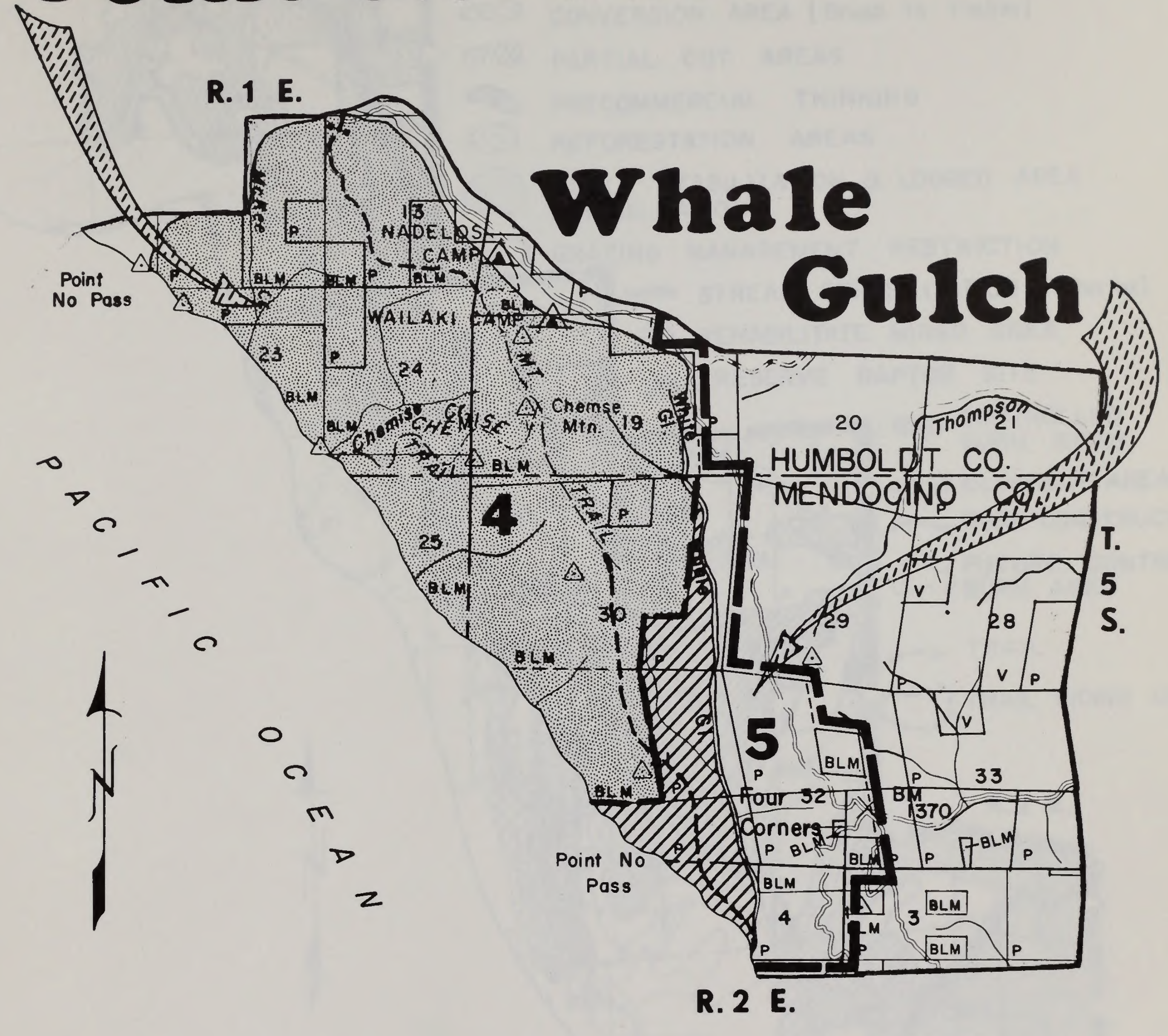
PLANNED ACTIONS LEGEND

- – – – TRAIL RIGHT OF WAY AND/OR CONSTRUCTION
- ● ESTABLISH PARKING AREA
- ▨ RESTRICT AREA TO NON-MECHANIZED USE
- ≈ VEHICLE USE AREA
- ▨ ROCK, KELP, TIDE-POOL PRESERVE

KRNCA - ZONE 3
PRIMARY USE - RESIDENTIAL

Point-No-Pass

Whale Gulch



PLANNED ACTIONS LEGEND

▨ POTENTIAL EXPANSION TO PRIMITIVE AREA

- - - - - TRAIL CONSTRUCTION

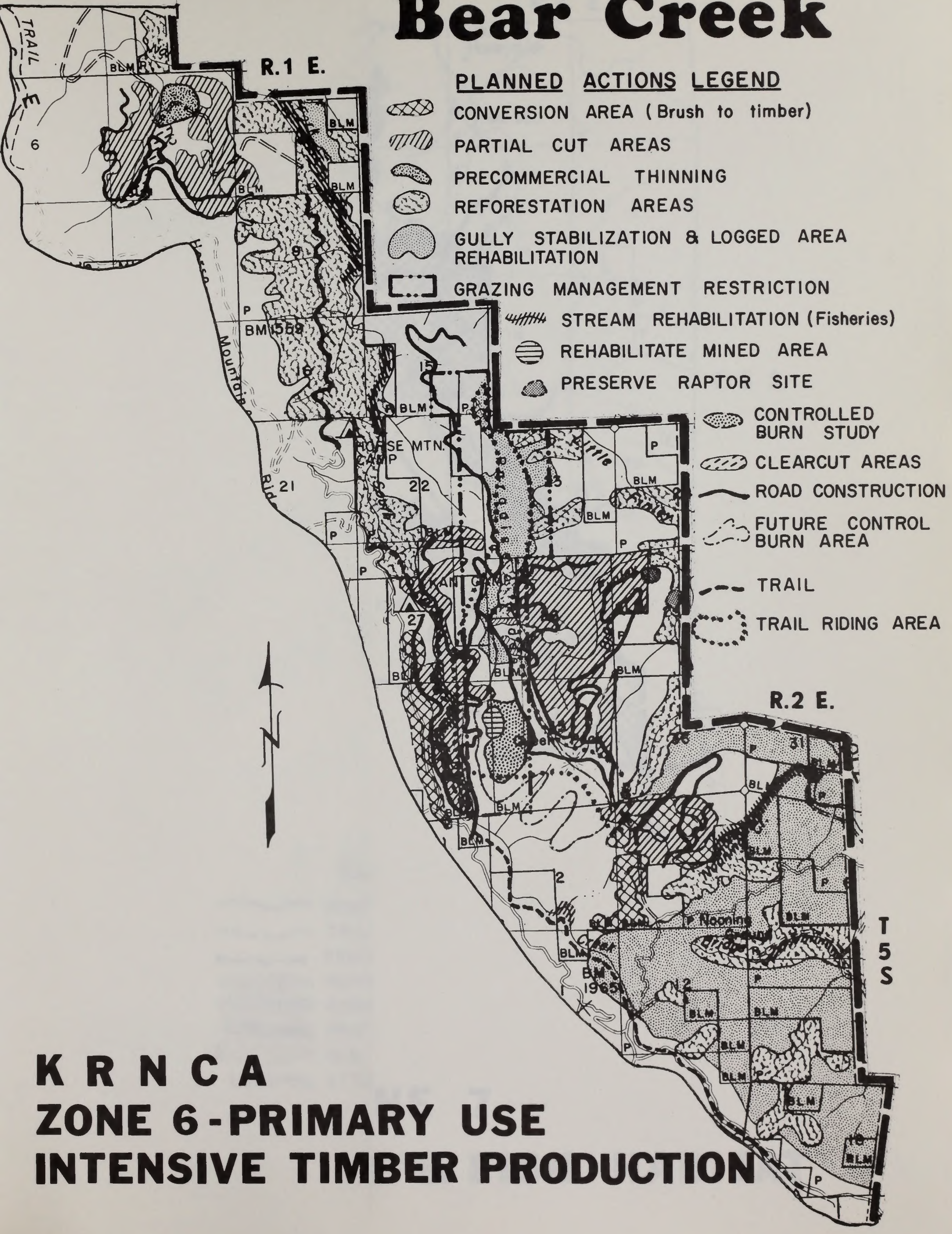
░ PRIMITIVE AREA

KRNCA

ZONE 4-PRIMARY USE-RECREATION

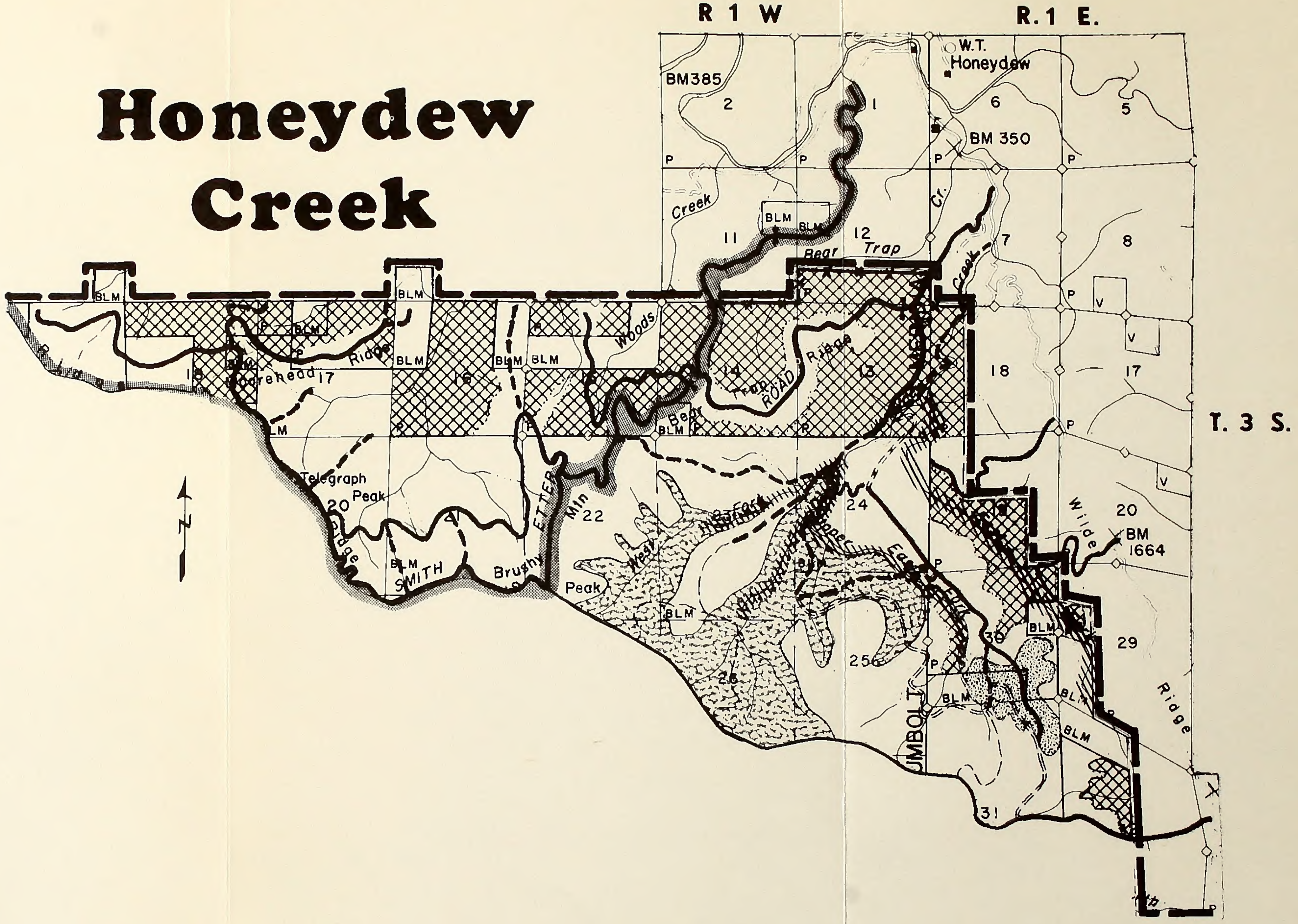
ZONE 5-PRIMARY USE-RESIDENTIAL

Bear Creek



K R N C A
ZONE 6 - PRIMARY USE
INTENSIVE TIMBER PRODUCTION

Honeydew Creek



PLANNED ACTIONS LEGEND

- RIGHT OF WAY ACQUISITION & ROAD CONSTRUCTION
- TRAIL CONSTRUCTION
- FENCE CONSTRUCTION
- REFORESTATION
- CONVERSION- BRUSH TO TIMBER
- PROTECTION CORRIDOR
- OLD GROWTH FOREST PRESERVATION
- STREAM REHABILITATION (FISHERIES)

KRNCA - ZONE 7

PRIMARY USE- WILDLIFE & FISH HABITAT

KING RANGE
NATIONAL CONSERVATION AREA
PROPOSED MANAGEMENT PROGRAM

Draft Environmental Impact Statement

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUMMARY

Draft (x) Final ( ) Environmental Statement

Department of the Interior, Bureau of Land Management

1. Type of Action: Administrative (x) Legislative ( )

2. Brief Description of Action: Proposed establishment of the King Range National Conservation Area in Humboldt and Mendocino Counties, California. The proposal includes designation of the Area boundaries, a multiple use plan, a management program implementing the plan, and proposed regulations governing mining activities in the Area.

3. Summary of Environmental Impact and Adverse Environmental Impacts: The proposal will restrict mineral exploration, construction of 37 miles of new road and reconstruction of 30 miles of existing road will result in some increase in sedimentation, reseeding of 1200 acres of presently eroding soils, and reforestation of 2600 acres will reduce sediment yield and restore productive capacity of forest sites. Recreation use will increase by over 100 percent, leading to adverse impacts on wildlife and primitive recreation values.

4. Alternatives Considered:

   A. No action
   B. Alternative Management Philosophies
      1. Full Preservation of Environmental Quality
      2. Maximum Utilization of Resources
   C. Alternative Levels of Implementation
      1. Assuming a $1,000,000 Budget
      2. Assuming a $3,000,000 Budget

5. Date Draft Statement Made Available to CEQ and the Public:

   MAY 31 1974

6. Comments Have Been Requested From the Following:

Federal Agencies

Dept. of Agriculture
  Forest Service
  Soil Conserv. Service

Dept. of the Army
  Corps of Engineers

Dept. of Commerce
  National Oceanic and Atmospheric Admin.

Environmental Prot. Agency

Dept. of the Interior
  Fish & Wildlife Service
  Bureau of Mines
  Bureau of Outdoor Recreation
  Bureau of Reclamation
  Geological Survey
  National Park Service

State Agencies

Office of Planning & Research Office of the Governor (State Clearinghouse) - covers all concerned state agencies
Coastal Zone Conserv. Comm.

Regional and Local

North Coast Region, Water Quality Control Board
Humboldt County Air Pollution Control District
Mendocino Co. Air Pollution Control District
North Coast Regional Coastal Zone Conserv. Commission
Humboldt Bay Harbor, Recreation & Conservation Commission
Humboldt Resort District No. 1
Mendocino Co. Board of Supervisors
Humboldt Co. Board of Supervisors

Organizations & Individuals

Far West Motorcycle Club
Mendocino Co. 4-Wheel Drive Patrol
Western Rockhound Assn., Inc.
Calif. Assn. of 4-Wheel Drive Clubs, Inc.
Redwood Empire 4-Wheel Drive Club
Redwood Region Audubon Society
Humboldt Wildlife Conservation Club
Redwood Chapter, Sierra Club
Redwood Buggy Association
Boot & Blister Club
Dr. Ed Schwartzman
Mr. Steven P. Steinhour
Mr. Leonard Blomquist
Dr. David P. Stevenson
Mr. Kay Roscoe
Mr. Robert McKee
Dr. Donald W. Hedrick
Mr. William Brown
Mr. Mal Coombs
Dr. William Devall

DEPARTMENT OF THE INTERIOR

DRAFT
ENVIRONMENTAL STATEMENT

Proposed

MANAGEMENT PROGRAM
KING RANGE NATIONAL CONSERVATION AREA

Prepared by

CALIFORNIA STATE OFFICE, SACRAMENTO, CALIFORNIA
BUREAU OF LAND MANAGEMENT
DEPARTMENT OF THE INTERIOR

MAY 1974

State Director

KING RANGE NATIONAL CONSERVATION AREA

PROPOSED MANAGEMENT PROGRAM

DRAFT ENVIRONMENTAL IMPACT STATEMENT

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I. DESCRIPTION OF THE PROPOSAL

The Bureau of Land Management, Department of the Interior, proposes to implement a management program for the King Range National Conservation Area (KRNCA). The program has been prepared in response to the mandate of the King Range Act, Public Law 91-476. A more detailed discussion of the background of this legislation is included in the attached King Range Management Program.

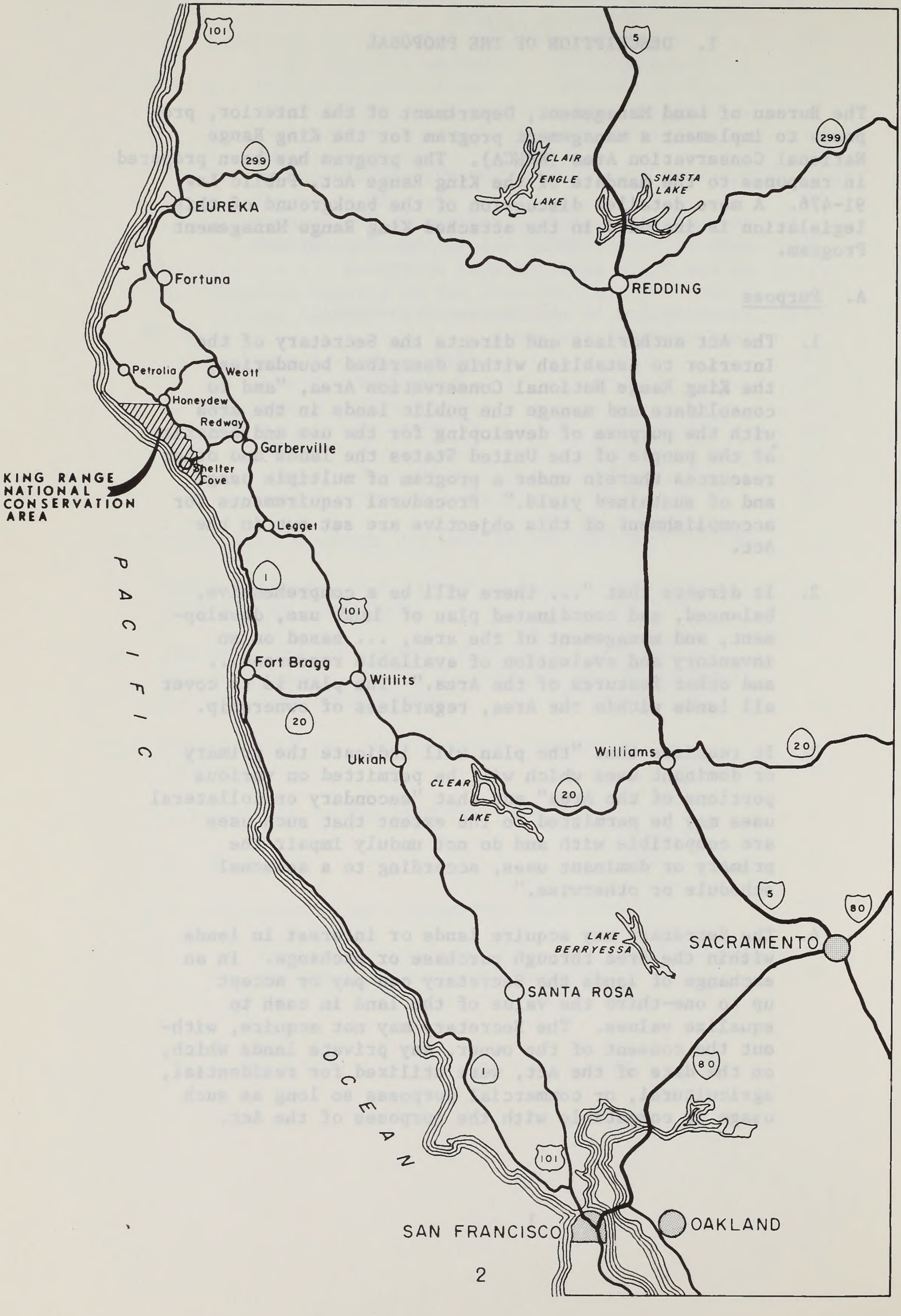
A. Purpose

1. The Act authorizes and directs the Secretary of the Interior to establish within described boundaries, the King Range National Conservation Area, "and to consolidate and manage the public lands in the area with the purpose of developing for the use and benefit of the people of the United States the lands and other resources therein under a program of multiple usage and of sustained yield." Procedural requirements for accomplishment of this objective are set out in the Act.

2. It directs that "... there will be a comprehensive, balanced, and coordinated plan of land use, development, and management of the area, ... based on an inventory and evaluation of available resources... and other features of the Area." The plan is to cover all lands within the Area, regardless of ownership.

3. It requires that "the plan will indicate the primary or dominant uses which will be permitted on various portions of the Area" and that "secondary or collateral uses may be permitted to the extent that such uses are compatible with and do not unduly impair the primary or dominant uses, according to a seasonal schedule or otherwise."

4. The Secretary may acquire lands or interest in lands within the Area through purchase or exchange. In an exchange of lands the Secretary can pay or accept up to one-third the value of the land in cash to equalize values. The Secretary may not acquire, without the consent of the owner, any private lands which, on the date of the Act, were utilized for residential, agricultural, or commercial purposes so long as such usage is compatible with the purposes of the Act.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SHASTA LAKE
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Fortuna
REDDING
Petrolia
Weott
Honeydew
Redway
Garberville
Shelter Cove
KING RANGE NATIONAL CONSERVATION AREA
Legget
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PACIFIC
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Fort Bragg
Willits
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Williams
Ukiah
CLEAR LAKE
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LAKE BERRYESSA
SACRAMENTO
SANTA ROSA
OCEAN
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SAN FRANCISCO
OAKLAND

5. The Secretary may establish reasonable mining regulations to protect the scenic and aesthetic values of the Area and to assure against pollution of the streams and waters.

6. The Secretary shall use public and private assistance as may be required to prepare a program of multiple usage and of sustained yield of renewable natural resources for the Area. The program shall include, but is not limited to:

   (1) A quantitative and qualitative analysis of resources.

   (2) Proposed boundaries of the Area.

   (3) A plan of land use, development and management together with any proposed cooperative activities with the State of California, local governments, and others.

   (4) A statement of expected costs and an economic analysis of the program with particular reference to costs to the United States and expected economic effects on local communities and governments.

   (5) An evaluation of the program in terms of local interest.

7. The Secretary shall establish the Area after copies of the program are submitted to Congress, the Governor of California and the supervisors of the counties in which King Range is located, after publishing a notice of his intention, and after receiving expression of local views.

B. Location

The proposed KRNCA lies 230 miles north of San Francisco and 70 miles south of Eureka. While most of the Area is in Humboldt County, the southern-most three percent lies in Mendocino County.

The King Range Area comprises about 54,000 acres along the most rugged and isolated portion of the California coast. The most impressive feature of the King Range is the relation of the mountains to the sea and the wilderness character of the land adjacent to the sea which sets the theme for aesthetic and recreational enjoyment. The unique character of this coastline is almost unduplicated along the Pacific shore of this country. The high peaks provide views of the ocean and surrounding coastal mountains. Along the water are found black sand beaches and flats, sweeping abruptly up into timbered or talus slopes. Vegetation ranges from open grass or brush on the exposed ridges to old-growth Douglas fir in the draws and protected stream bottoms. On the exposed western slopes, Douglas fir takes on a gnarled and wind-blown form. Stands of hardwood are scattered along the coast at areas such as Big Flat.

The entire west-facing slope to the crest of the first ridge has been relatively untouched by man. The highway system generally follows the ocean shore until it approaches the King Range vicinity. Here, because the area was too rocky, rugged and precipitous for construction, the road swings several miles inland.

C. Proposed Action

The Management Program includes a detailed discussion of the proposed boundary adjustments to the KRNCA and contains a large fold-out map (following page 79 of the attached Management Program) showing the proposed boundary changes. The zones discussed in the following section are based on the revised KRNCA boundaries, as proposed.

The Area is geographically divided into two aspects that are sufficiently differentiated to form distinct management units. The Pacific Slope, lying west of the main divide between Buck Creek on the south and Kinsey Ridge on the north, contains about 35,000 acres. The remaining 22,000 acres lie generally east of the main ridge on the western slope of the Mattole River drainage, including the drainages of Honeydew, Squaw, Bear and Finley Creeks. The plan indicates that the Area will be managed for a variety of multiple-use values, including recreation.

1. Designation of Zones

Public Law 91-476, in section 2, paragraph (b)(2), states "the plan will indicate the primary or dominant uses which will be permitted on various portions of the Area." Using the Bureau planning system, seven zones were identified through a review of each resource by current use and potential for development. Adjustments were made in boundaries of zones to allow for maximum utilization of the primary resource without a significant detrimental effect on adjacent zones efficiency. For example, the West Slope zone boundary was shifted 1/4 mile below the ridge crest to the east rather than leaving it at the crest as first defined. This change greatly enhanced the West Slope recreation zone with practically no effect on wildlife habitat or sustained yield forest production in zones 6 and 7.

Zone boundaries are shown on the maps following page 79 of the attached Management Program. The zones are:

Zone 1. Punta Gorda - This zone includes the old Coastguard lighthouse station and surrounding area, and extends along a narrow coastal strip north to the mouth of the Mattole River and southward to the boundary of Zone 2.

Zone 2. West Slope - This zone is primarily the slope which drains directly into the ocean from the north boundary of the Area to the Shelter Cove subdivision area.

Zone 3. Shelter Cove - This zone mainly coincides with the area subdivided for residential development at Shelter Cove.

Zone 4. Point No Pass - This zone is little developed and lies to the south of Shelter Cove. The zone is characterized by steep slopes which extend to the ocean.

Zone 5. Whale Gulch - This zone forms the southern tip of the King Range Area, contains little public land and has numerous private owners.

Zone 6. Bear Creek - This zone is the Bear Creek drainage which is a tributary of the Mattole River. Included in the zone are many areas of logged over private land. The Bear Creek zone lies east of Zones 2 and 3.

Zone 7. Honeydew Creek - This zone includes the Honeydew Creek drainage and part of the Squaw Creek drainage. Included is all land in the KRNCA east of Zone 2 and north of Zone 6.

2. The Proposed Plan

Following the Bureau's planning system, a general plan was developed to identify and resolve resource use conflicts between primary and secondary or collateral uses, to determine needed coordination between resource uses, and to establish an overall management direction for the area. A more detailed discussion of the plan is included in the attached Management Program and the Management Framework Plan and Coordinated Activity Plan for the KRNCA.

This statement is directed primarily toward the zone designations and the more important resource and land use decisions in the proposed plan.

a. Area-wide actions

Several actions will apply to all or several zones in the KRNCA. These are detailed in the Management Program and include:

(1) Recreation
- Conducting the needed contractual surveys of archeological, historical and natural history resources, over a five-year period.
- design of an interpretative program.
- establishment of a regular patrol of the Area.
- development of cooperative arrangements to assure public access.

(2) Wildlife
- preservation of raptor habitat and prohibition of disturbance-creating activities near raptor nests.
- exclusion of timber harvest, road construction or recreation development within 1/4 mile of Honeydew Creek, Big Finley Creek and Bear Creek until the use of these areas in Zones 6 and 7 by bald eagles and osprey can be determined.

(3) Fisheries
- Stream rehabilitation will involve removal of log jams on 35 miles of stream, primarily through hand labor.

(4) Minerals
- Regulations are being proposed that will allow mineral development to proceed in accordance with reasonable environmental management controls. In some areas these controls may preclude surface-disturbing activities.

(5) Lands
- The Bureau will encourage undergrounding of utilities and use of existing right-of-way corridors through cooperative planning with utility companies.

- Applications for such uses of lands as communications sites or solid waste disposal sites will be handled on a case-by-case basis as the need develops.
- Approximately 17,000 acres of land acquisitions are contemplated. About 4,000 acres had been acquired by March 1, 1974. The majority of the acquisition to date, as well as that contemplated during the period through 1978, will be accomplished through exchange of lands with private landowners. Under this program, national resource lands outside the King Range boundary, but within Humboldt and Mendocino Counties, will be exchanged for private lands within the KRNCA boundaries. Proposed regulations for land acquisition within the KRNCA have been developed to support this program. A separate environmental analysis has been prepared on the exchange program and individual supplemental environmental analyses are being developed to assess the potential impacts of each exchange proposal.

(6) Transportation System
Approximately 37 miles of new road construction are planned, primarily in Zones 6 and 7. Additionally, reconstruction of 30 miles of substandard existing roads will be needed. New trail construction will total 49 miles, while major maintenance and upgrading of 28 miles of existing trail will be necessary.

(7) Fire Protection
Fire protection for public lands is provided, under contract, by the California Division of Forestry. The plan requires approval of the District Manager prior to use of mechanical equipment in Zones 2 and 4.

(8) Administrative Sites
The plan proposed establishment of a combined administrative site/visitor center in the vicinity of Thorn Junction, on the road from Redway to Shelter Cove, and a seasonally manned visitor center at the north end of the area at Honeydew.

ZONE SUMMARY

Zone	Primary Use	Secondary Use	Acres* (Total)	% NRL** as of 3/1/74
1	Recreation	Wildlife, livestock	3,340	7.7
2	Recreation	Watershed, wildlife, fisheries, livestock	23,030	80.2
3	Residential	Recreation	3,507	1.6
4	Recreation (Primitive)	Watershed	3,606	89.0
5	Residential	Recreation	1,276	12.9
6	Forestry	Watershed, wildlife, fisheries, recreation, minerals, livestock	12,047	52.9
7	Wildlife	Fisheries, forestry watershed, recreation	10,458	63.3
		TOTAL	57,265*	61.4

* Acreages include those lands within the proposed KRNCA boundary change.

** National Resource Lands (Public Lands administered by BLM)

b. Punta Gorda - Zone 1

The primary use of this zone has been determined to be recreation. The remains of the old lighthouse set the theme for the area and recreational use centers on the lighthouse and adjacent beach areas. Planned actions which are compatible with this use include:

(1) Land acquisition along the beach in the area adjacent to the lighthouse from the high tide line to the toe of the slope or to the existing road.

(2) Acquisition of access easements within the area between the Mattole River and Punta Gorda and the coastal strip between Punta Gorda and the main King Range area to the south.

(3) Recreation Use Areas
- a mechanized use area along the beach from the Mattole River to the lighthouse.
- a nonmechanized use area south of the lighthouse to the northern boundary of Zone 2.

(4) Encourage management of the coastal inland habitat, tide pools, beach and off-shore rocks for nonconsumptive uses of wildlife.

(5) Implement a grazing system to provide 117 AUM's of grazing use from June to October.

c. West Slope - Zone 2

The primary use of this zone is recreation. The thrust of management is to retain the wild character of the seaward facing slopes and preserve the scenic value of the beach. Actions in this zone include:

(1) Acquisition of public access along the beach, at the coastal streams, and along several potential trail routes.

(2) Identification of the entire beach area within the zone as a nonmechanized use area.

(3) Limiting development on the west slope to preserve the primitive character of the landscape.

(4) Development of a parking and primitive camping area at the terminus of the Smith-Etter Road at Spanish Flat.

(5) Removal of the unused nonhistoric buildings on Big Flat Creek and Shipman Creek and the corrals

on Spanish Flat if it is determined that they lack historical significance. If necessary, arrange for life-estate use of the cabins at Spanish Flat and remove cabins after arrangements terminate.

(6) Stabilize 10.2 miles of abandoned roads and numerous skid trails. Outslope 5 to 6 miles of abandoned roads. Revegetate 1,843 acres of cutover lands and employ grazing management systems to stabilize 2,533 acres.

(7) Establish a herd of Roosevelt elk in the Big Flat area. (Re-introduction of a native species)

(8) Permit 1105 AUM's of grazing use, under a grazing system, during the season from June to October.

(9) Mining regulations will prohibit surface-disturbing activities that are incompatible with the primary recreation use designation.

d. Shelter Cove - Zone 3

The primary use in this zone is residential. The Bureau's objective in the Shelter Cove Zone is to provide recreational facilities that are compatible with this primary use.

(1) Acquire public access to the beach from Shelter Cove to south of Telegraph Creek.

(2) Develop parking areas at Black Sand Beach and Point Delgada.

(3) A nonmechanized use area will be established along the two miles of beach from Black Sand Beach to the boat launch.

(4) A mechanized use area will be established along the approximately 3 miles of beach from Telegraph Creek to Gitchell Creek.

(5) Closing the existing Shelter Cove Ranchos Road to public vehicle use, while using it for nonmechanized public access.

e. Point No Pass - Zone 4

The primary use in this zone is recreation. Management actions will be directed toward preservation of primitive values. The area will be designated a primitive area.

(1) No camping facilities will be developed in this zone.

(2) Several trails will be developed.

(3) No logging will be permitted, except that limited actions to control insects or disease may be allowed if adjacent forest lands are threatened and the action will not significantly detract from primitive qualities.

(4) All private in-holdings will be acquired.

(5) Mining regulations will prohibit surface disturbing activities that are incompatible with the primary recreation use designation.

f. Whale Gulch - Zone 5

The primary use is residential. No acquisition is presently contemplated in this zone. If lands become available, they will be acquired if they are contiguous to Zone 4 and suitable for meeting management objectives of that zone.

g. Bear Creek - Zone 6

The primary use in this zone is sustained yield timber production.

(1) The allowable cut on national resource lands in both Zones 6 and 7 is 1.9 million board feet. During the first five years, this volume will be taken from Zone 6. In addition to timber harvest, the following actions are planned for the first five-year period.

  (a) Planting 440 acres. Cutover private lands will be planted after they are acquired

  (b) Brush conversion and planting of 320 acres.

  (c) Precommercial thinning of 50 acres

  (d) Construction of 8 miles of multi-purpose mainline road and approximately 17 miles of timber sale roads.

(2) Stabilization activities consisting of cross drainage, outsloping, seeding and fertilizing will be implemented on 658 acres of eroding logging roads and skid trails. Improving drainage on about 6 miles of existing road. Reduction in livestock use on 316 acres on Paradise Ridge, rehabilitation of small slide areas, and stabilization of the Queen Peak mine are also planned.

(3) A wildlife habitat improvement study project, consisting of controlled burning and reseeding, will be implemented in a 64-acre stand of dense, tall chaparral and hardwoods in this zone.

(4) Public access will be acquired to the South Fork Bear Creek and the Paradise Ridge area.

(5) Roads and trails will be open to mechanized vehicle use; areas that show evidence of serious erosion due to vehicle use will be closed. A trail will be developed along Bear Creek connecting Tolkan Campground with Wailaki Campground.

h. Honeydew Creek - Zone 7

The primary use in this zone is wildlife. Management objectives are directed toward preserving and enhancing wildlife habitat, with particular emphasis on such potentially threatened species as the spotted owl.

(1) The old-growth timber at the head of Honeydew Creek will be maintained for 5 years, until an intensive inventory of wildlife species can be made. There are indications that these stands are important habitat for the threatened spotted owl and other species.

(2) Public access will be acquired over the existing Smith-Etter Road. Physical access for hunters and wildlife observers will be improved by ten-foot wide openings through 16 miles of chaparral; six-foot openings will be cleared throughout forested areas; 6 miles of four-wheel drive trail will be opened and one mile of existing road will be upgraded.

(3) Brush conversion and planting of conifers is planned on 80 acres in the first 5 years. Cutover lands will be planted after acquisition.

(4) Multi-purpose roads will be constructed over 2.5 miles in this initial period.

(5) Watershed stabilization will be undertaken on 535 acres. This will entail outsloping, cross-drainage, seeding and fertilizing of old logging roads and skid trails. Drainage will be improved on 16 miles of existing maintained roads. Reforestation of 274 acres of forest soils will take place.

(6) Public hunting opportunities will be expanded through cooperative agreements with private landowners in the Bear Trap Ridge and Moorehead Ridge areas.

(7) Two hundred-foot wide buffer strips, in which timber harvest is restricted to selective cutting, will be maintained along recreation roads and trails.

(8) Approximately 2,912 acres of land acquisition is planned in this zone.

3. Proposed Mining and Land Exchange Regulations

The King Range Act (PL 91-476) provides that the Secretary may establish reasonable mining regulations to safeguard scenic and aesthetic values and protect water quality. It also provides authority for acquiring lands or interest in lands through purchase or exchange. Proposed regulations have been drafted to implement these provisions of the law. The provisions of these drafts include:

a. 43 CFR 2273

The amendment provides that the authorized officer may accept title to nonfederal lands within the KRNCA and may convey public lands to the grantor of nonfederal lands and interests in lands, subject to several provisions:

(1) The public lands offered for exchange must lie in Humboldt and Mendocino Counties and must have been classified for exchange.

(2) If the lands offered in exchange are at least equal to two-thirds the value of the selected lands, payments may be made to equalize the value differential. Equalization may also be made by posting of deposit or bond, assuring that additional lands at least equal to the difference in value will be conveyed to the government.

(3) When minerals are reserved in lands conveyed by the United States, persons prospecting or removing minerals shall be liable to the surface owners for any actual damage to the surface or improvements.

b. 43 CFR 3827

This proposed addition of Subpart 3827 establishes rules and procedures for prospecting, location of a mining claim, annual assessment work, exploration and development and other mining operations in the KRNCA. Provisions of the Subpart include:

(1) Before commencing any of the above mentioned activities, a plan of operation must be filed and approved by the authorized officer. The plan must include copies of location notices and notices of assessment; name and address of the operators and owners; a description of the area of operations; a description of access routes, existing and proposed roads, and means of transportation to be employed; a list of equipment and a description of facilities to be employed in the operations; a map or sketch of areas where disturbance of vegetation or soils is anticipated; a description of environmental effects and the effects on forest resources; and a description of the measures that will be employed to minimize the environmental impacts of the operators.

(2) In cases where a plan for prospecting or location of a claim has been approved by the authorized officer, he may subsequently deny approval of plans for exploration or mineral development if such operations impede the primary use of the zone or unduly impair environmental values.

(3) An environmental statement may be required prior to approval of operation plans, supplemental plans, or modifications of plans, where operations are on lands identified as "primitive" in the King Range Management Program.

(4) Access to the area of operation will be in accordance with an application filed with, and approved by the authorized officer.

(5) A minimum performance bond of $100 will be required for all operations, except in the case of prospecting where there will be no surface disturbance.

D. Relationship to Other Proposals, Plans and Projects

The King Range National Conservation Area is not contiguous to other national resource lands administered by the Bureau of Land Management. However, resources of the KRNCA play a role in the Bureau's total program in the Ukiah BLM District and the Management Program must be considered in this larger context. The national resource lands in the KRNCA, approximately 34,000 acres, currently constitute 8% of the total acreage in the Ukiah District. Planned acquisitions will increase federal ownership to about 48,000 acres by 1978 and at that time lands in the KRNCA will be slightly under 11% of total national resource lands in the District.

While a new districtwide timber inventory is currently underway and will result in a revised allowable annual cut, the old inventory estimated the district's allowable cut at 20 million board feet. The KRNCA contributed over 9 million board feet of timber during the period from 1964 to 1966, but there have been no recent timber sales in the Area. The Management Program estimates the sustainable annual cut in the KRNCA at 1.9 million board feet, or about 10 percent of the current district allowable cut.

The State Water Resources Control Board has designated the nearshore waters of the KRNCA as an Area of Special Biological Significance. Under this designation waste discharges that alter the natural water quality of the area are prohibited.

The Coastal Zone Conservation Act, passed as an initiative in the November 1972 General Election, provides for protection of the California coastal zone. It established a statewide commission and six regional commissions, who were charged with development of a plan for conservation of the natural resources of a zone extending seaward to the limits of the State's jurisdiction and inland to the crest of the nearest coastal mountain range. It also requires a permit prior to initiating development in an area extending inland 1000 yards from the mean high tide line.

The North Coast Regional Commission has jurisdiction over coastal lands within Del Norte, Humboldt, and Mendocino Counties, an area which includes King Range. As defined by the regional commission, the planning area extends inland for a considerable distance and includes the entire KRNCA. The permit area extends to the crest of the King Range, as interpreted by the North Coastal Regional Commission.

While the North Coast Regional Commission has declined to take a position on the Management Program until their inventory of resources is complete, there has been close coordination between the Bureau and the Commission during development of the program, and because of the similarity in goals of the King Range Act and the Coastal Zone Act, continued close cooperation is anticipated.

The Coastal Zone Management Act of 1972, administered by the Secretary of Commerce, requires in part that federal agencies conducting activities affecting the coastal zone, conduct such activities in a manner consistent with state management programs.

The area between mean high tide and the seaward extenstion of the state's three-mile jurisdictional limit is managed by the State Lands Commission. Lands between the three-mile limit and the limits of United States jurisdiction are administered by the Los Angeles Outer Continental Shelf Office of the Bureau of Land Management.

Plans for recreational development within the KRNCA are consistent with the state's general recreation plans, including the State Comprehensive Outdoor Recreation Plan (SCORP) and the California Coastline Preservation and Recreation Plan. The KRNCA falls within the boundaries of District 1, California Department of Parks and Recreation.

The U. S. Bureau of Sport Fisheries and Wildlife, on December 18, 1973, applied for withdrawal of unreserved islands, rocks and reefs from Oregon to Mexico preparatory to establishing a California Island National Wildlife Refuge. A number of these rocks are located off the King Range.

II. DESCRIPTION OF THE ENVIRONMENT

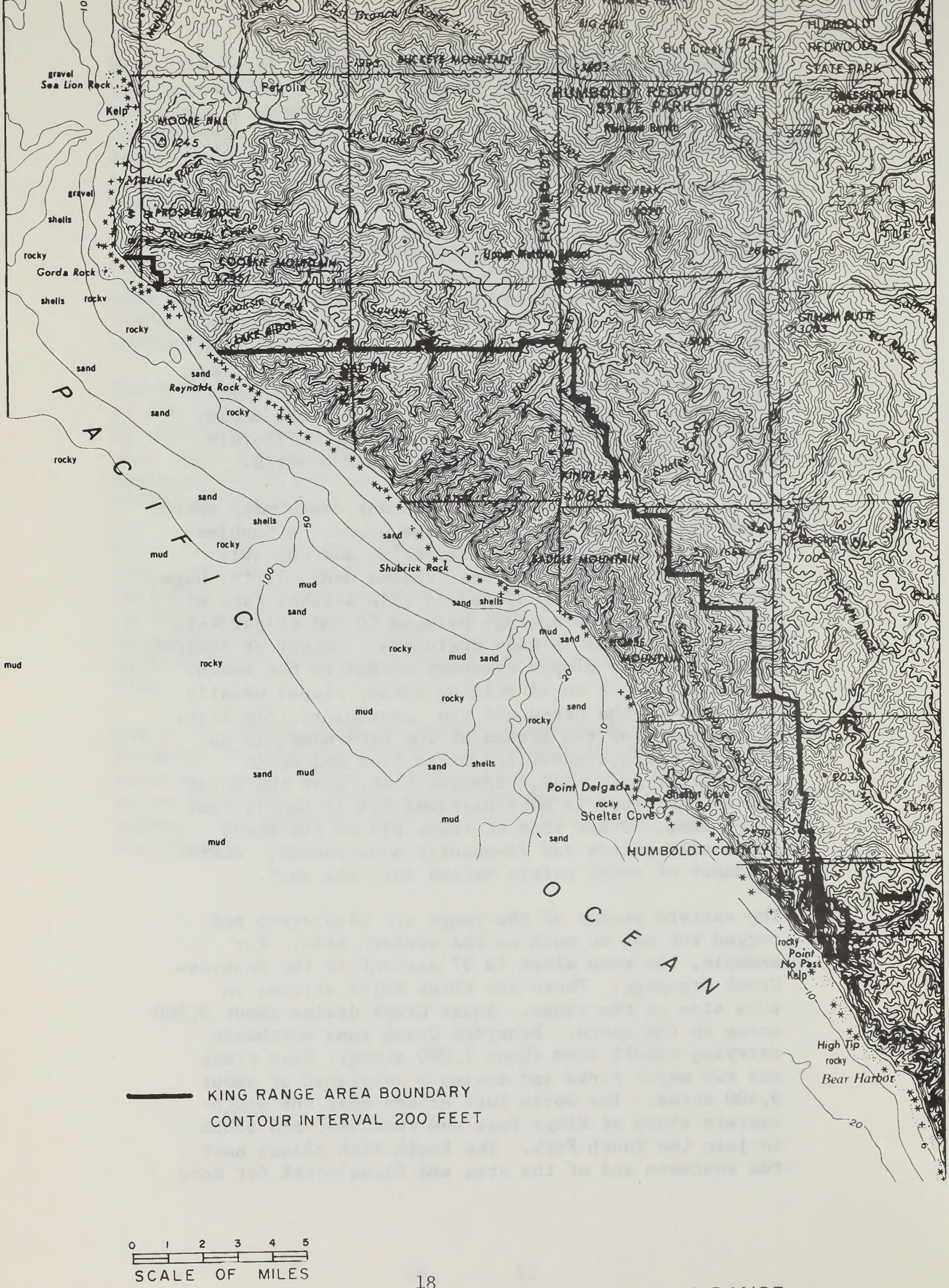
A. The Existing Environment

1. Topography

The King Range National Conservation Area takes its name from the high ridge which dominates the area. The range runs northwest by southeast through the entire National Conservation Area. Elevations along the ridge range from 2,350 feet at Oat Hill in the north to 4,087 feet at Kings Peak and to 2,596 feet at Chemise Mountain at the south end. Between these points the elevation never falls below 1,400 feet. Kings Peak is less than three miles from the ocean. Such an abrupt rise is very rare on the California coast and indeed is rare anywhere in the world.

On the western slope of this dominant range many short, steep streams run directly to the ocean. A combination of steep slopes, high rainfall, and unstable soil and rock formations has created many cliffs, huge rock slides and talus slopes on this seaward face of the range. Slopes average between 50 and 60 percent, but approach 90%+ in many drainages. Except at Shelter Cove, the steep slopes commonly extend to the beach. A square mile or so of rolling grassy slopes usually lies between the ocean and the mountains. Big Flat, at the mouth of the stream of the same name, is an alluvial terrace about 1.5 miles long and up to one-quarter mile wide. Spanish Flat, near the north end of the area, is much narrower but is nearly four miles long. Other than at these places the beach is usually narrow and frequently nonexistent, where a number of rocky points extend into the surf.

The eastern slopes of the range are also steep and rugged but not so much as the western side. For example, the mean slope is 37 percent in the Honeydew Creek drainage. There are three major streams on this side of the range. Squaw Creek drains about 3,500 acres in the north. Honeydew Creek runs northeast carrying runoff from about 7,000 acres. Bear Creek has two major forks and drains a watershed of about 9,400 acres. The North Fork arises near the southeastern slope of Kings Peak and runs east and south to join the South Fork. The South Fork arises near the southern end of the area and flows north for more



KING RANGE
NATIONAL CONSERVATION AREA

than 10 miles to its junction with the North Fork. Past this junction Bear Creek runs east, out of the King Range Area, to the Mattole River. The King Range streams form only a small portion of the Mattole's 240 square mile watershed.

With the major exception of the South Fork of Bear Creek, the streams on both the east and west slopes branch repeatedly in a dendritic pattern. This produces, in general, narrow, short ridges, and short steep canyons.

2. Climate

The Area has a Mediterranean type climate that is greatly influenced by the ocean. Winters are generally cool and wet and summers are hot and dry. Cold, wet air masses commonly bring heavy rains into the area from the west and northwest, often accompanied by strong southwesterly winds. In summer a persistent high pressure air mass overlies the western Pacific, holding out polar air flows and accounting for the hot dry climate of the Area.

Rain usually begins in late September, is heaviest from December through February, and ends sometime in May. A few showers occur during the dry season and as much as several inches may fall during August and September. Although precipitation has only been recorded at one point in the Area, at Shelter Cove, general observations indicate a wide variability in total rainfall amounts. This would be expected in an area of such complex topography. Average annual rainfall in Honeydew, just outside the Area, is about 110 inches. This is one of the highest recorded rainfall amounts in the United States. Even greater precipitation may fall on parts of the King Range. At Shelter Cove, on the coast, precipitation averages only about half as much.

Snow occurs infrequently, except on the higher peaks. Kings Peak may receive several feet of snow that often persists until May.

Fog is a common summer occurrence along the coast and in the river valleys. Fog banks range from a few hundred to several thousand feet in thickness and the upper slopes of the range are seldom enshrouded, while the lower slopes and beaches are often fog-covered for days at a time.

Temperatures along the coast seldom fall below freezing and the frost-free growing season is more than 360 days.

3. Geology

The King Range area is included in the California Coast Range Geologic Province. The province is characterized by two distinct but entirely different core complexes, one mainly consisting of a Jurassic-Cretaceous sedimentary assemblage including some serpentine and minor metamorphic rocks, and the other of granitic intrusives and older metamorphic rocks. This core complex is in part covered by a thick blanket of latter Cretaceous and Cenozoic clastic sedimentary rocks. These rocks with their associated structures show a record of intermittent but persistent crustal unrest. Folds, thrust faults, steep reverse faults and strike-slip faults developed during the Tertiary Period, and similar deformation is continuing today associated with the subduction of the East Pacific Plate under the Continental Plate.

At Shelter Cove where a small land area juts out into the ocean, an assemblage of volcanic and sedimentary rocks crops out. The occurrence of this group of rocks is related to an active major fault zone which trends across the Area. The volcanic rocks are mafic in composition and altered. They appear to consist of pillows, tuffs or breccias. Associated with these volcanic rocks are sedimentary rocks consisting of interbedded shales and sandstones. The intimate relationship of these rocks indicates that the volcanic rocks were probably formed by submarine eruptions.

Except for the immediate area at Shelter Cove, the characteristics of the rocks of the King Range are consistent throughout the area. These rocks are not typical of the Franciscan rocks located in the central and southern coast ranges, since the terrain for the most part lacks the greenstone and chert which characterizes the typically recognized Franciscan. The area at Shelter Cove more closely resembles the usual assemblage of the typical Franciscan terrain. On the other hand, many of the features observed in these rocks indicate a very close relation to the Franciscan rocks in age, lithology and origin. They are, therefore, considered to be a different facies and are considered to range in age from at least late Jurassic to late Cretaceous.

The Franciscan rocks of the King Range area have been extremely deformed. They have been tightly folded; locally the folding is acute and overturned. Minor structures can be seen in almost every outcrop. Commonly found are shears, minor faults and drag folds.

Many of the shears are nearly parallel to the bedding and form an irregular boundinage or disrupt the continuity of the bedding. Many of these shears appear to be related to the folding of the strata.

Fractures and faults which cut across the bedding are fairly common. Fractures that shatter the more competent beds, as sandstones, are also a common feature of the terrain. Most outcrops exhibit irregularities in bedding, either due to folding or flowage, to such an extent that it is difficult to obtain any meaningful strike and dip.

Among the major structures, steep northwesterly trending faults appear to be the dominating structure. At Shelter Cove several surface fault breaks accompanied the 1906 earthquake. The main break is exposed near the top of Kaluna Cliffs. The fault cuts highly brecciated sandstone and siltstone. The fault dips northeast about 60^{o} and consists of a single well-defined plane that branches upward into two subsidiary and subparallel breaks about 50 feet below the top of the cliff. This fault is known as the Point Delgada fault and is thought to be either the extension of the main San Andreas fault, or a main branch.

There are probably other major faults with similar northwest strike located in the Area. Some may have large vertical components of displacement which would be responsible for recent uplift of this part of the coast ranges.

The faults within the Franciscan are not easily detected because they generally trend with the prevalent structural grain that is due to folding. Presence of major faulting or shear zones is sometimes suggested by the highly brecciated nature of the shales and sandstones as evidenced by the Kaluna Cliffs or the area southwest of North Slide Peak. In these areas there is a prevalence of landslides and extreme amounts of erosion taking place. Usually the surface areas are bare, as vegetation has not been able to establish itself.

The surficial deposits in this area consist of recent stream deposits and moderately thick accumulations of colluvium on the steep slopes. Depending on the degree of erosional activity occurring in the watershed, some channels may be either full of alluvial debris in transit or in a stabilized condition with only small quantities of stream wash material.

The colluvial deposits occurring on the slopes consist of unstratified or poorly stratified, unconsolidated deposits composed of fresh and weathered rock fragments, organic material, sediments or irregular mixtures of these materials. Generally, they accumulate by downslope movement by action of gravity and/or assisted by running water. Some of the various deposits that have been lumped together under the heading of colluvium include old landslide deposits, old channel deposits that occur as isolated accumulations on side slopes above the present stream channels and thicker and more extensive deposits that have accumulated by the action of "soil creep".

4. Minerals

Natural seepages of oil and gas along the Mattole River were noted as early as 1860. The nearest and oldest commercial oil well is in the Petrolia District, 11 miles north of the KRNCA; 50 wells were drilled in 1894, 1899, 1900, 1907, 1921, 1935, 1947, and 1953, with peak production of 140 barrels in 1954 from a stratigraphic trap 1,600 feet deep. The field is no longer productive. Due to complex folding and faulting in the King Range, the potential for oil and gas is less than that of the Petrolia District.

Lignite has been reported in several small beds 6" to 8" thick,dipping north, just north of the King Range, in Section 12, T. 3S., R. 1W., H.M., but there has been no production and the occurrence is questionable. No lignite exposures were observed in this area or within the King Range.

Copper has been reported on private land in Section 12, T. 2S., R. 1E., H.M., 6 miles north of the boundary, but there was no production.

The Mattole River produces sand and gravel, but no workable deposits were observed within the King Range. Since the Mattole River drains an area of sandstone and shale, the gravels make a poor quality product for road base and other construction.

The only known mineral production in the King Range was from the Queen Peak mine, on the brushy eastern slope of Queen Peak at an elevation of about 2,000 feet (NW¼ Section 35 and NE¼ Section 34, T. 4S., R. 1E., H.M.)

Although the deposit was known for a long time, the first carload of manganese ore from the Queen Peak mine was shipped to the GSA stockpile at Wenden, Arixona, in September 1958. Within the next year, a total of 1,115 tons of hand-sorted, high grade ore was tracked 45 miles to the nearest railhead. The ore ran from 41% to 52% manganese, about 6% iron, and less than 15% silica. When government stockpiling ended in 1959, all California manganese mines closed. Manganese has been reported in several other outcrops between Queen Peak and Shelter Cove.

Lands on the Outer Continental Shelf are not included within the KRNCA. There are indications that these lands have an undetermined potential for oil and gas, phosphorite, manganese nodules, and, near river mouths, potential placer gold.

5. Water

a. Surface Water

(1) Water yield and use vary greatly. Yield is estimated at 82% of total precipitation. Average runoff in the Mattole River drainage is 970,100 acre feet. An estimated 55,300 feet of runoff drains from Bear Creek annually, while Honeydew Creek's runoff is estimated to be about 52,300 acre feet. Use is almost nonexistent within the Area. None of the coastal streams are used at all except by wildlife, livestock and an occasional human. Outside the Area, Honeydew, Bear and Squaw Creeks contribute runoff to the Mattole River, but the river is subject to almost no direct consumptive use. Only about 350 acres of agricultural land are irrigated by direct diversion from the river. There are no impoundments, either within the King Range Area or downstream. Most domestic and agricultural water is obtained from springs on private land, and there are a few wells, mainly along the Mattole River.

(2) Sediment. Quantities of sediment vary greatly. The steep, unstable topography causes many slumps and slides. Stream cutting of the toe of these features is the main natural contributor of sediment. Bank caving is a minor producer of sediment. The heavy

vegetative cover prevents much sheet type erosion. However, where vegetation is removed erosion may become a very serious problem. There are occasional massive land movements, such as may be caused by earthquakes, which move great quantities of earth and rock down the watershed in a short period. It is estimated that approximately 80% of the sediment load is a product of natural erosion.

Man-caused erosion results mainly from three kinds of actions. Logging can disturb the ground badly and can contribute heavy sediment loads to streams. Most of the private land in the unit has been logged, but almost none of the public lands. The logging practices employed on these private lands have definitely contributed to sediment loading. Road building is probably the main cause or erosion and sedimentation. There is some evidence of this on the grasslands along the northern boundary of the unit. Finally, conversion of timberland to grassland removes the deep rooted plants and thus lowers soil stability. This has been done on portions of a ranch in the northeastern part of the Area.

(3) Pollutants. Pollutants other than suspended and free sediment have not been found to be a problem in the King Range streams. There are, however, several streams flowing into the ocean south of Big Flat that are high in calcium that is caused by the rock formations where the streams originate.

b. Ground Water

Virtually no data on ground water is available. Known springs are shown on the hydrology overlay in the unit resource analysis. There are no known wells within the boundaries of the planning unit. One well site investigation at Tolkan Camp has been made by USGS. Their conclusion was that the chance of finding ground water in that area was poor. It can be inferred from the folded and faulted rock strate that there are probably a number of small ground water basins in the Area. There is no way at this time to determine their exact location or extent.

c. State Water Quality Requirements

The California Regional Water Quality Control Board has designated the nearshore waters of the King Range coastal area as an Area of Special Biological Significance which puts very stringent requirements on any effluent in natural water. Once an area has an ASBS designation no effluent is allowed which will change background quality or temperature above naturally occurring conditions.

Activities in the KRNCA are governed by the water quality objectives and discharge prohibitions issued by the North Coast Regional Water Quality Control Board. These objectives and discharge prohibitions are contained in the North Coastal Basin 1-B (interim) Water Quality Control Plan, published in June 1971.

Among the objectives having direct relevance to the Management Program are:

(1) Turbidity shall not be increased more than 20 percent above naturally occurring background levels.

(2) There shall be no bottom deposits other than of natural causes in the waters of the North Coast Region.

(3) There shall be no visible evidence of any floatable material or oil and grease other than that resulting from natural causes.

(4) No substance which promotes aquatic growths in the receiving waters, to the extent such growths cause nuisance or damage any beneficial use, shall be discharged.

6. Soils

a. Erosion

Natural erosion is evident in the King Range, especially near mountain peaks and on the very steep western slopes. Earthquakes, as recently as 1960, caused major earth disturbances and apparently exposed many areas to earthslides and slips.

Accelerated erosion is caused by man's disturbance of the natural landscape. It results from exposure of the soil surface to the effects of running water and of wind, through burning, excessive grazing, forest cutting and tillage, any of which destroy or weaken the vegetation. Exposed soil may erode very rapidly if not managed to restore vegetation or to compensate for its absence.

Some areas of the King Range contain examples of accelerated erosion. Road construction has in some places changed the earth slopes beyond their angle of repose and has caused earth slippages and landslides. Road construction alone has exposed many acres of soil to accelerated erosion both above and below the immediate road area. Past burning and some timber cutting practices have destroyed vegetative cover and have caused active landslides, especially in the Honeydew Creek area.

b. Soil Series Descriptions

Brief soil series descriptions are given here.

(1) Conifer Soils

Hugo: These soils are derived from sandstone and some conglomerate shale and schist parent material to form medium textured sandy clay loam to heavy loam soils. They are well drained and moderately permeable and range in depth from 2½ to 5 feet. Erodibility under natural vegetative cover is low; however, in disturbed areas, where vegetation has been removed, erodibility may be very high on steep slopes. The natural vegetation associated with Hugo soils is a mixed conifer-hardwood forest of Douglas fir, tanoak, and madrone with an understory of shrubs. Due to their high acidity, attempts to convert these soils to forage production have been unsuccessful.

Road construction conditions of the Hugo soils are good because of their favorable physical properties and their relatively high bearing surface capacity.

Josephine: These soils are derived from sandstone and shales that may be metamorphosed in and from schist parent material and represent the next developmental stage above. They occur on moderate to very steep slopes under mixed coniferous forest. Depth to rock ranges from 20 to 60 inches, 36 to 48 inches being average. Erodibility under natural vegetative cover is low; however, in disturbed areas where vegetation has been removed, erodibility may be very high. Vegetation varies - Douglas fir, ponderosa pine, sugar pine, incense cedar, black oak, Oregon white oak, madrone, big leaf maple, manzanita, poison oak, mountain misery, and perennial grasses.

Road construction conditions of the Josephine soils are not as good as the Hugo, because of higher clay content in subsoils.

Usal: The Usal soils are developed from Franciscan sandstone shale parent material. Underlying parent rock is hard, partially weathered, shattered sandstone at the depth of about 38". They occur on steep to very steep mountainous slopes. Erodibility under natural vegetative cover is low; however, in disturbed areas where vegetation has been removed, erodibility may be very high. Vegetation is typically coniferous forest with Douglas fir, some grand fir and western hemlock. Hardwood species are tanoak, madrone and California laurel. Sword fern is the principal understory species. Road construction conditions are about the same as the Josephine soils.

(2) Woodland Grass Soils

Kneeland: These soils are derived from yellowish brown sandstone (graywacke). They are moderately deep (35") to sedimentary rocks. Kneeland soils occur on moderately steep to steep, well dissected mountains, with rounded ridges and V-shaped drainages. Where vegetation has been removed, erodibility is moderate to high. Vegetation consists of grass, with bracken fern common. Occasional scattered hardwoods are Oregon white oak and Califojnia laurel.

Road construction conditions on moderate slopes are fair to good.

(3) Chaparral Soils

Los Gatos: Los Gatos soils are derived from very pale brown sandstone parent material. They rest on sandstone bedrock at about 36". These soils appear on steep to very steep slopes. Erosion hazard is moderate to high with the removal of vegetation. Vegetation is chaparral with some areas of hardwoods and grass.

Road construction conditions are fair to good.

Maymen: The Maymen soils are derived from light yellowish-brown and pale brown, very hard fractured sandstone. Vegetation is usually open stands of chaparral consisting of chamise, manzanita, ceanothus, scrub or dwarf oak, and scattered small trees in protected areas.

Road construction conditions are good; bearing rocks are hard and abrasive.

Cahto: These soils are developed from deeply weathered, very pale brown sandstone and shale parent material. Depth to rock ranges from 18"-36". Vegetation consists of tall dense shrubs with stunted hardwoods, coast whitethorn, eastwood manzanita, California coffeeberry, California yerba santa, California laurel, tanoak, madrone and sparse understory of poison oak, bracken fern and other herbaceous plants.

Road construction conditions are good.

(4) Unclassified and Miscellaneous Land Types

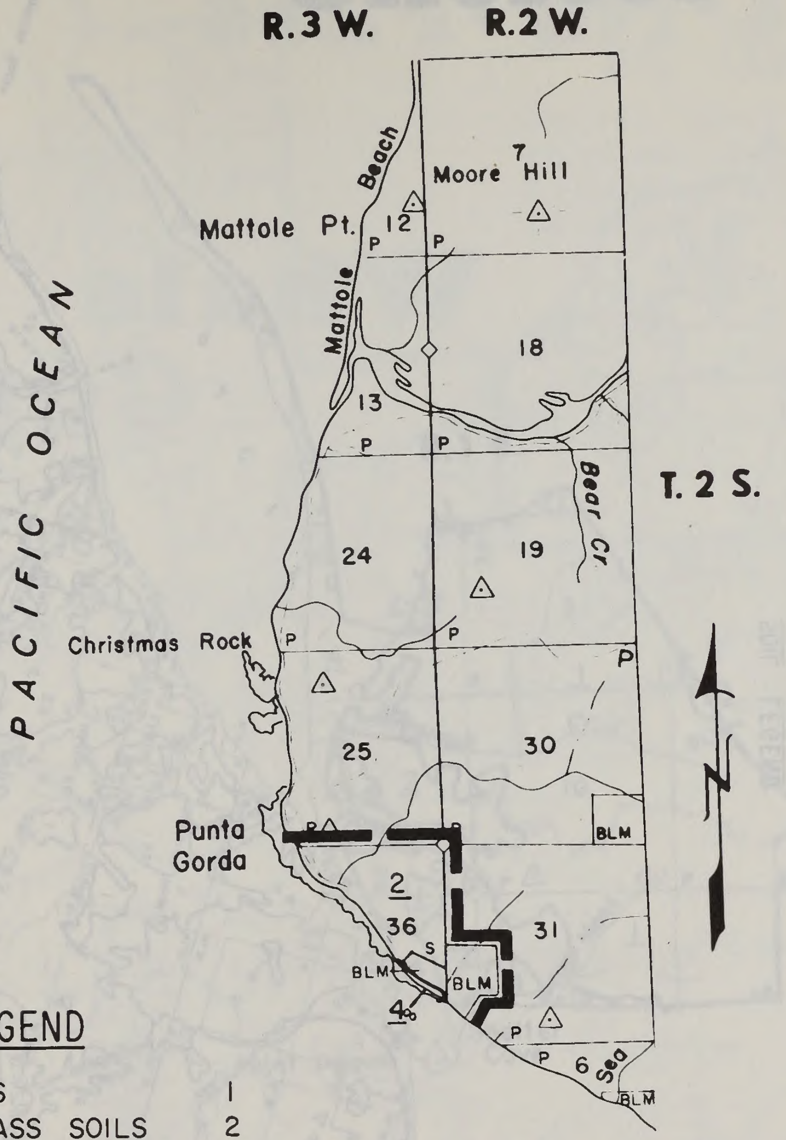
(a) 100 and 200, unclassified: secondary bottomland soils; or cultivated cropland.

(b) 700 miscellaneous land types. These land types have little or no soils, or soils of the type that cannot be feasibly classified. They are generally unsuited for commercial production of timber or range forage and are described as follows:

- Colluvial land: These are areas of unconsolidated recent colluvium of heterogeneous deposits of soil material, rock fragments or mixtures of the two. They accumulate by gravity on the base of slopes. Such areas are very unstable, steep, gravelly, and subject to frequent surface movement. Woodlands are most commonly associated with these areas.

- Riverwash, beaches, and dune land: This group consists of barren, or nearly barren, course-textured material subject to frequent shifting. Riverwash materials appear mostly in the form of sand, gravel, or cobblestone in the stream channels away from the coast, along the coast on beaches and active sand dunes.

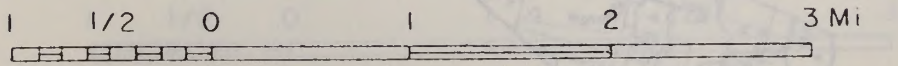
Punta Gorda



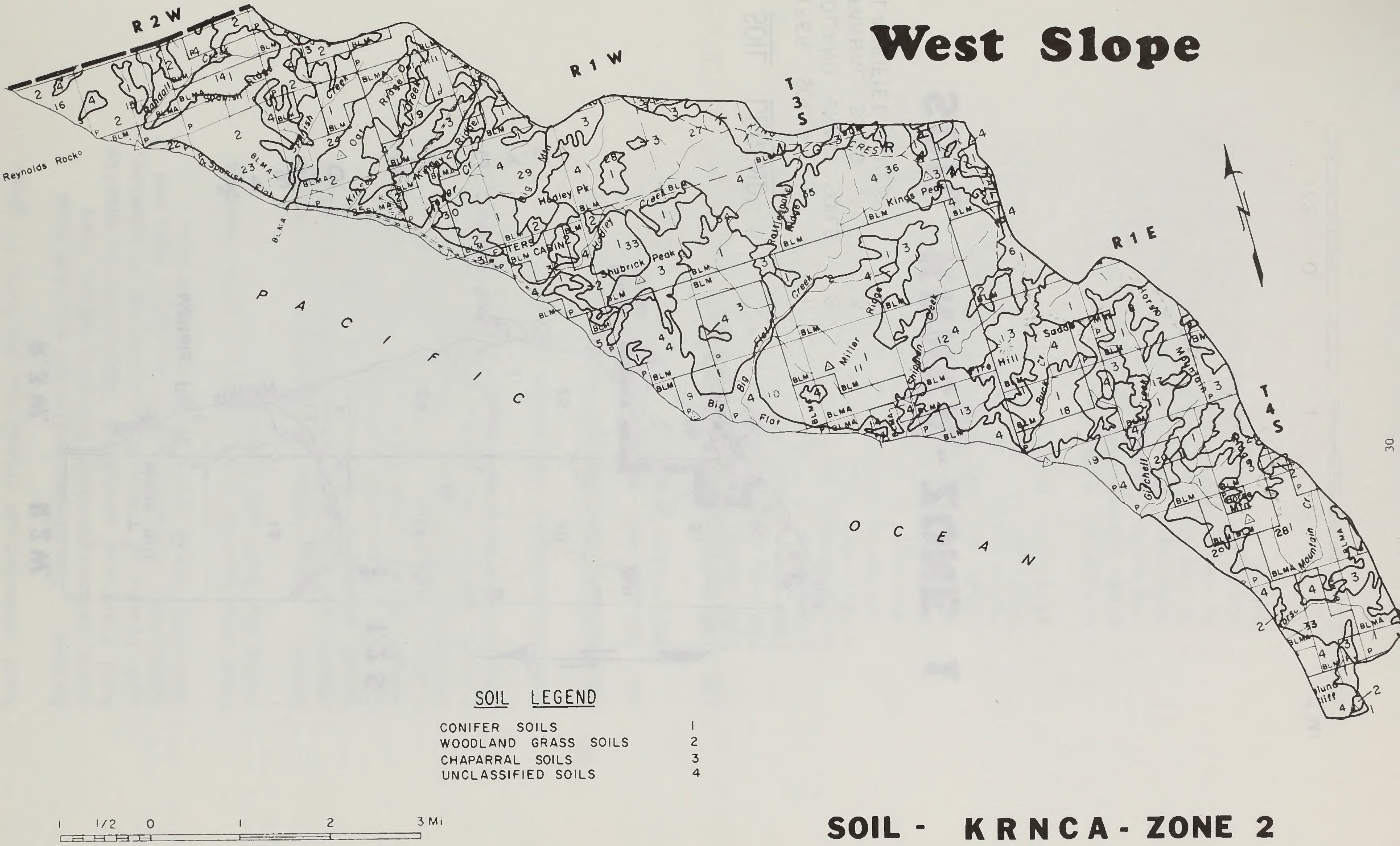
SOIL LEGEND

CONIFER SOILS	1
WOODLAND GRASS SOILS	2
CHAPARRAL SOILS	3
UNCLASSIFIED SOILS	4

SOIL KRNCA - ZONE 1



West Slope

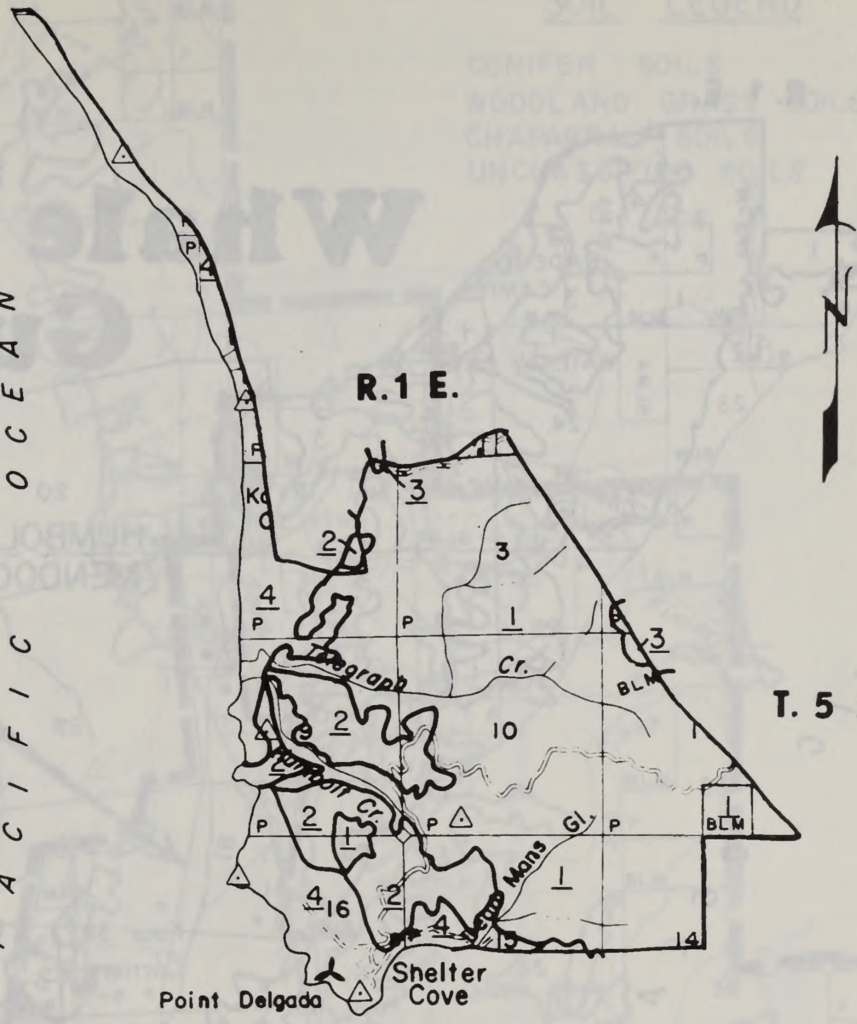


SOIL LEGEND

CONIFER SOILS	1
WOODLAND GRASS SOILS	2
CHAPARRAL SOILS	3
UNCLASSIFIED SOILS	4

SOIL - KRNCA - ZONE 2

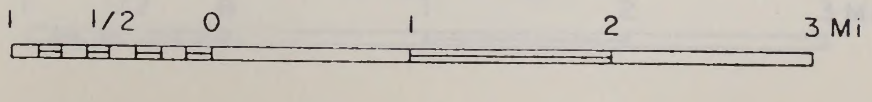
Shelter Cove

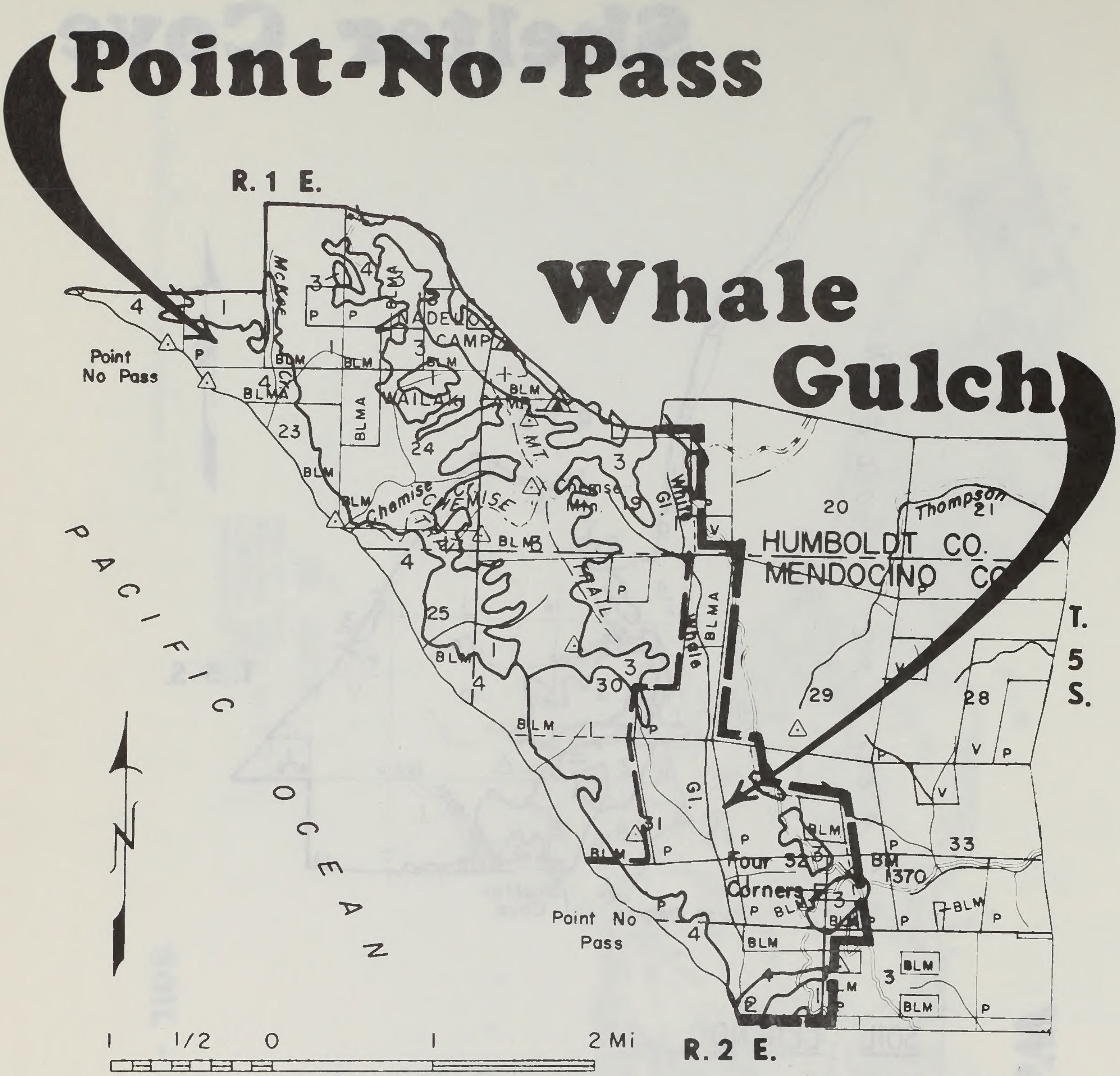


SOIL LEGEND

CONIFER SOILS	1
WOODLAND GRASS SOILS	2
CHAPARRAL SOILS	3
UNCLASSIFIED SOILS	4

SOIL - K R N C A - ZONE 3



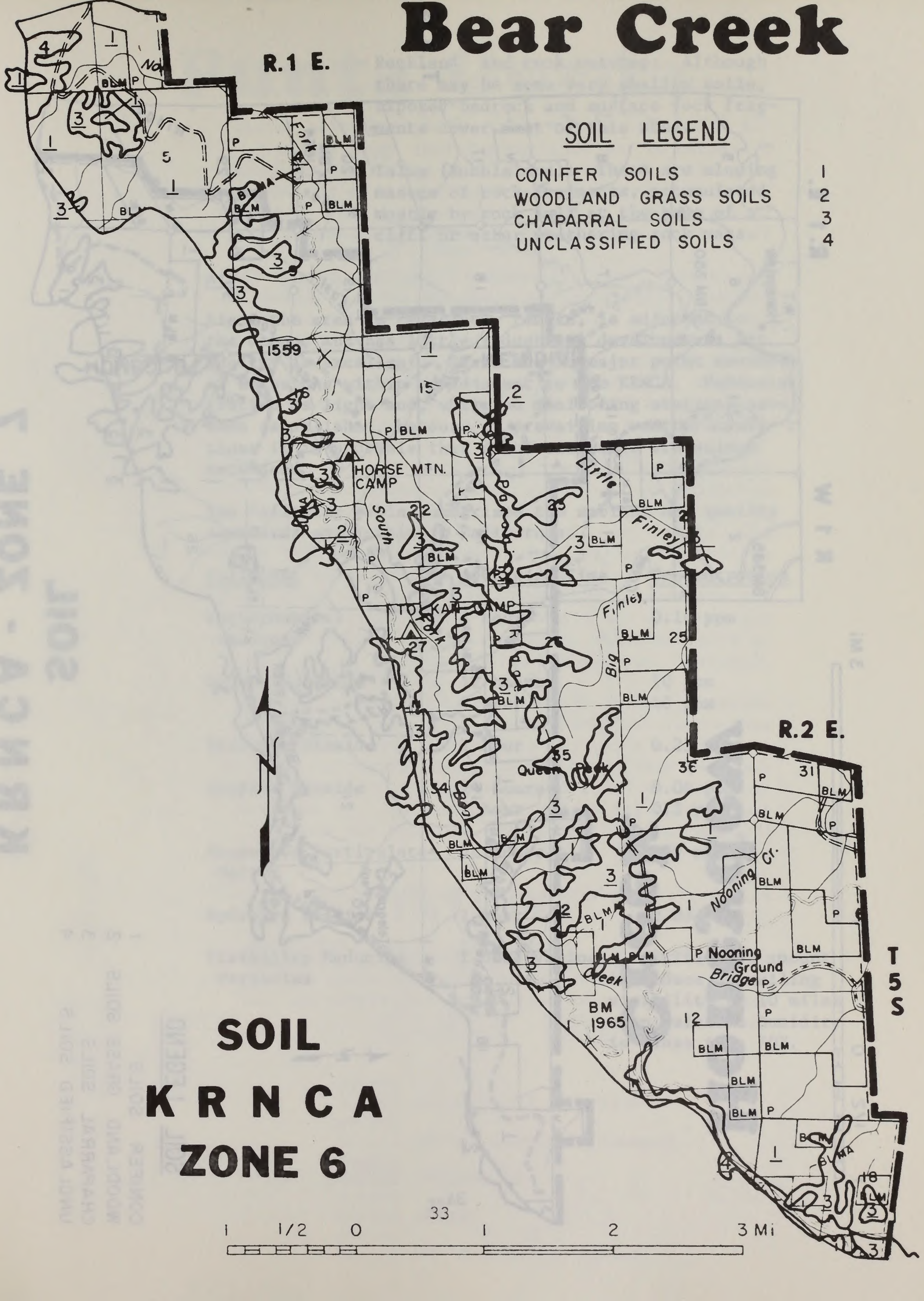


KRNCA
ZONE 4 & ZONE 5
·SOIL·

SOIL LEGEND

CONIFER SOILS	1
WOODLAND GRASS SOILS	2
CHAPARRAL SOILS	3
UNCLASSIFIED SOILS	4

Bear Creek

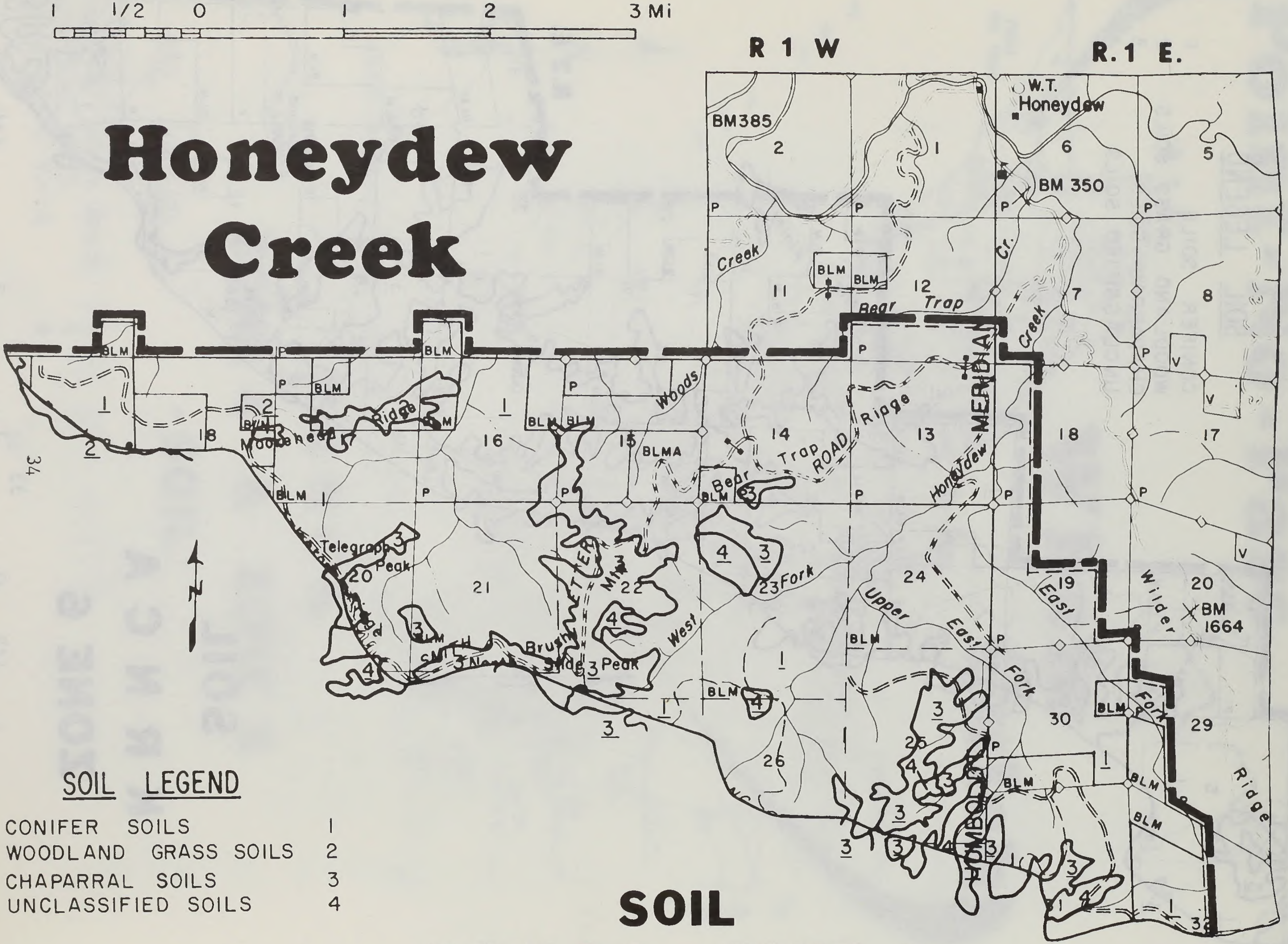


SOIL LEGEND

CONIFER SOILS	1
WOODLAND GRASS SOILS	2
CHAPARRAL SOILS	3
UNCLASSIFIED SOILS	4

SOIL
KRNCA
ZONE 6

Honeydew Creek



SOIL LEGEND

CONIFER SOILS	1
WOODLAND GRASS SOILS	2
CHAPARRAL SOILS	3
UNCLASSIFIED SOILS	4

SOIL
KRNCA - ZONE 7

- Rockland and rock outcrop: Although there may be some very shallow soils, exposed bedrock and surface rock fragments cover most of this area.
- Talus (Rubbleland): These are sloping masses of rock frajments, accumulated mostly by rock fall at the base of a cliff or other weathering rock mass.

7. Air

Since the area is relatively remote, is adjacent to the ocean, and has little industrial development, air quality is excellent. There are no major point sources of emissions within or adjacent to the KRNCA. Vehicular traffic is light and, while no monitoring stations have been established, because of prevailing weather conditions it is probable that state standards are seldom exceeded.

The following table summarizes the ambient air quality standards applicable in California.

Pollutant	Averaging Time	Concentration
Photochemical oxidants	1 hour	0.10 ppm
Carbon Monoxide	12 hours	10 ppm
	1 hour	40 ppm
Nitrogen Dioxide	1 hour	0.25 ppm
Sulphur Dioxide	24 hours	0.04 ppm
	1 hour	0.5 ppm
Suspended Particulate Matter	24 hours	100 mg/m^3
Hydrogen Sulfide	1 hour	0.03 ppm
Visibility Reducing Particles	1 observation	Sufficient amount to reduce prevailing visibility to 10 miles when relative humidity is less than 70%.

8. Vegetation

The KRNCA lies within the Pacific Coniferous Forest Subregion of the Coniferous Forest Biome. Munz classifies this area as falling within the Oregonian Biotic Province. In the King Range area the subregion is represented by three plant communities: Douglas Fir Forest, Northern Oak Woodland, and Coastal Prairie.

The Coastal Prairie community occupies a narrow discontinuous strip along the ocean and several islands on the ridgetops. The prairie was originally composed of bunch grasses and flowering herbs, but the perennials have now been partially superseded by weedy annual grasses. The Coastal Prairie Community comprises 4300 acres of the KRNCA. This community is closely correlated with soil type.

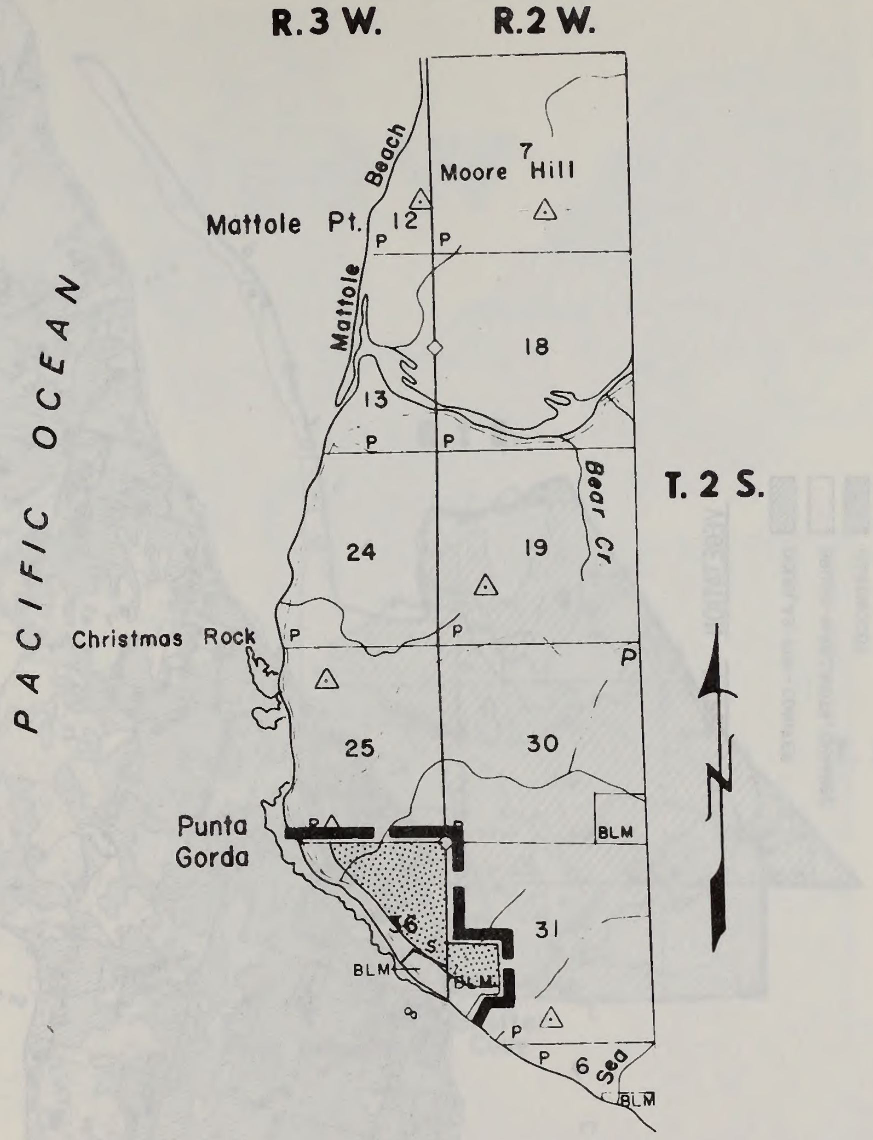
The Douglas Fir Forest Community is by far the largest community in the KRNCA, covering approximately 38,000 acres. Coniferous species dominate the overstory in the climax type. Douglas fir is by far the dominant coniferous species, but minor amounts of other species such as sugar pine are present. Madrone and tanoak are predominant understory species and in seral stages may dominate the overstory. Other understory species in this community include scrub oak, whitethorn, other chaparral species and huckleberry.

Chaparral stands include a wide variety of species and occupy shallower soils, often forming climax communities along the ridgetops. However, since the dominant species in the KRNCA are primarily those of the Northern Oak Woodland community, these areas have been classified within the community. An estimated 10,000 acres fall within the Northern Oak Woodland community.

A list of vegetative species in the KRNCA is included in Appendix A.

At least 25,000 acres of the KRNCA have a potential for intensive timber management, including harvest cutting, vegetative conversion, reforestation, and fertilization.

Punta Gorda

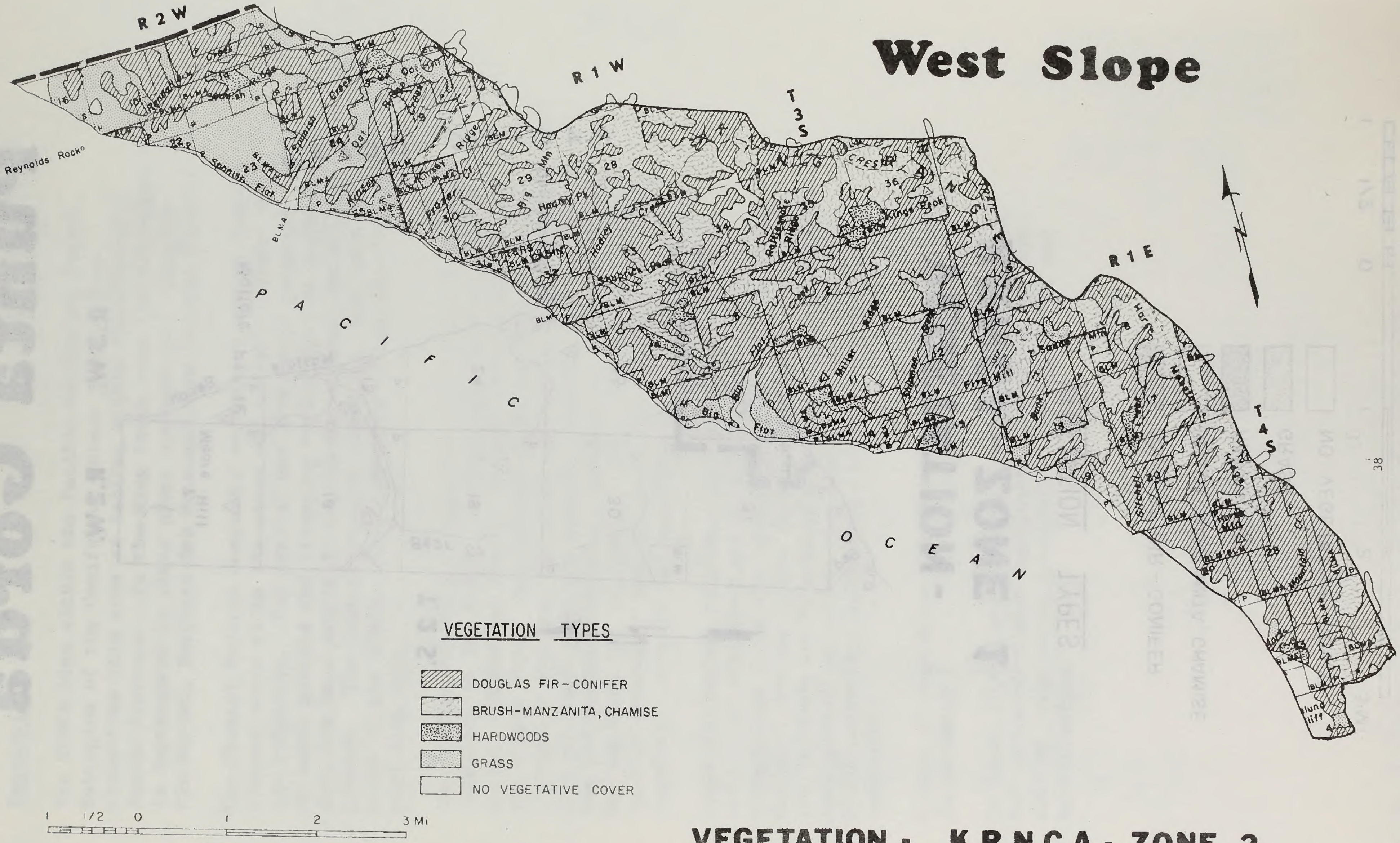


VEGETATION - KRNCA - ZONE 1

VEGETATION TYPES

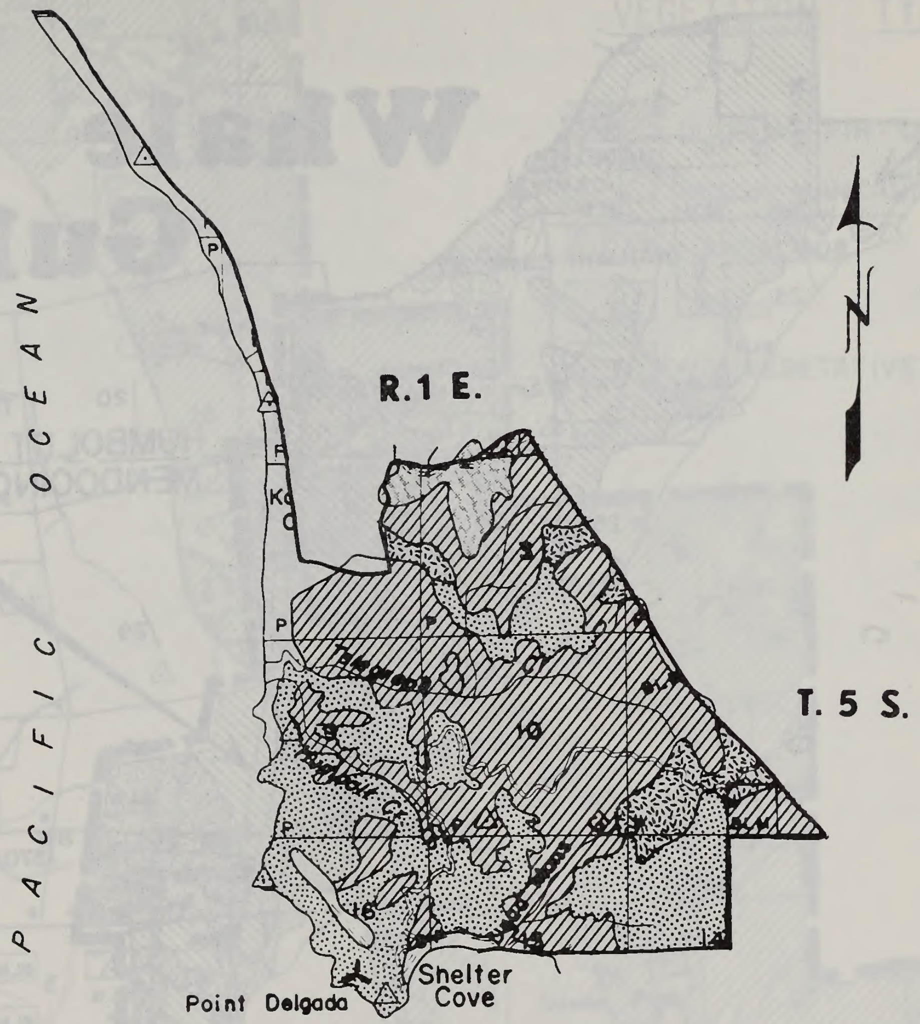
▨	DOUGLAS FIR - CONIFER
☐	BRUSH - MANZANITA, CHAMISE
▩	HARDWOODS
░	GRASS
☐	NO VEGETATIVE COVER

1 1/2 0 1 2 3 Mi



VEGETATION - KRNCA - ZONE 2

Shelter Cove



VEGETATION TYPES

▨ DOUGLAS FIR - CONIFER

░ BRUSH-MANZANITA, CHAMISE

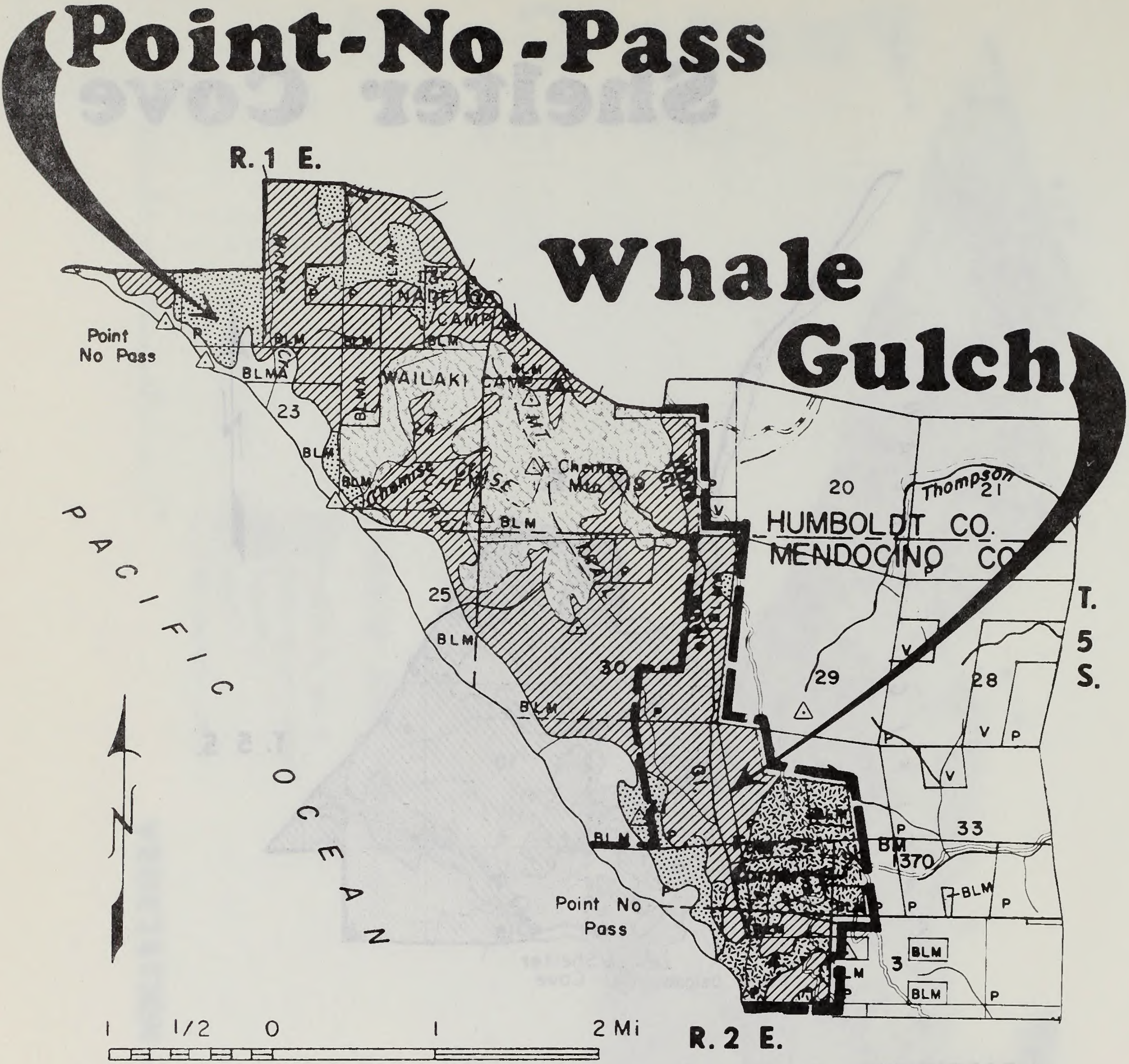
▩ HARDWOODS

▒ GRASS

☐ NO VEGETATIVE COVER

VEGETATION- K R N C A - ZONE 3

1 1/2 0 1 2 3 Mi



KRNCA

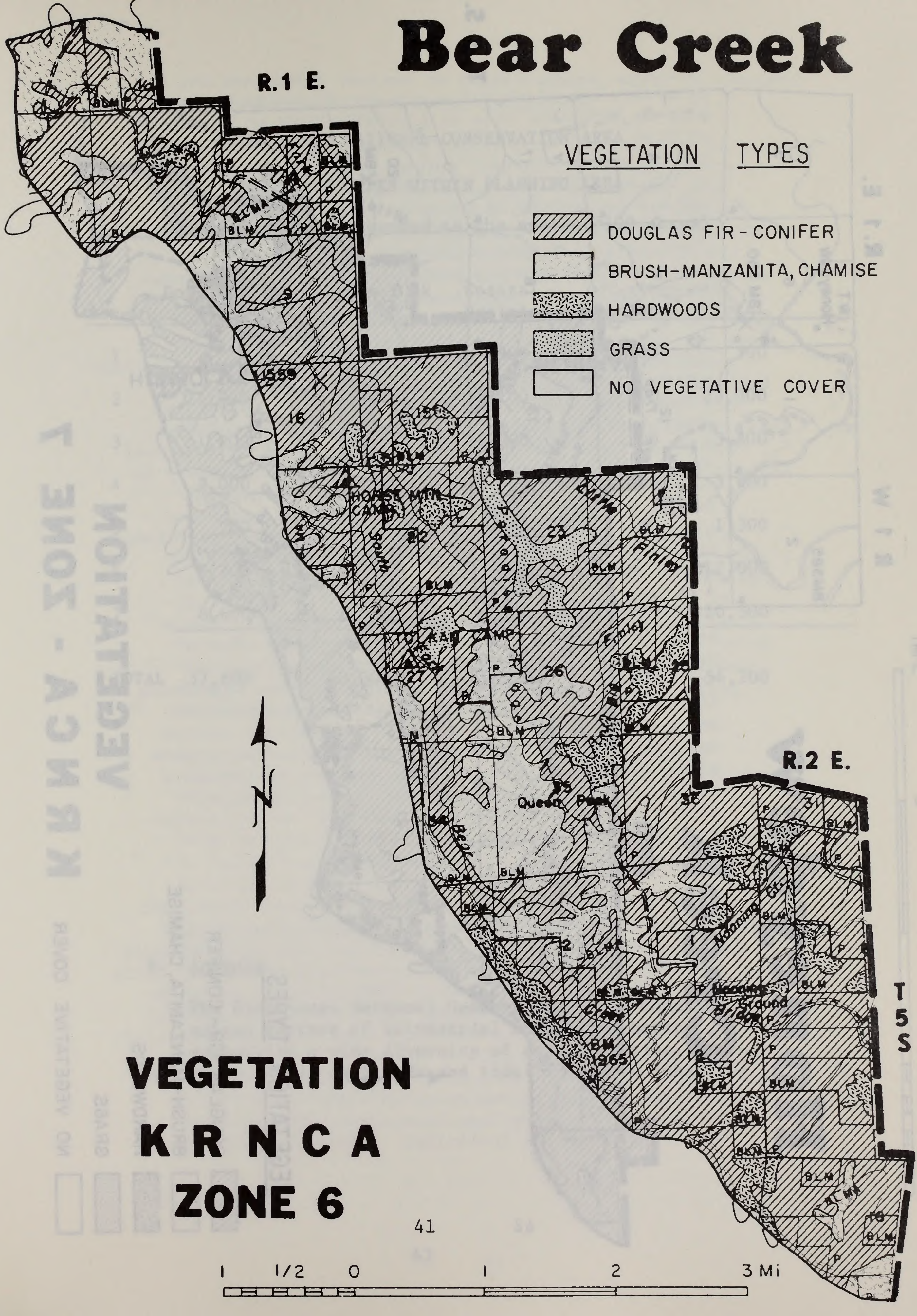
ZONE 4 & ZONE 5

-VEGETATION-

VEGETATION TYPES

▨ DOUGLAS FIR—CONIFER
░ BRUSH-MANZANITA, CHAMISE
▩ HARDWOODS
░ GRASS
☐ NO VEGETATIVE COVER

Bear Creek

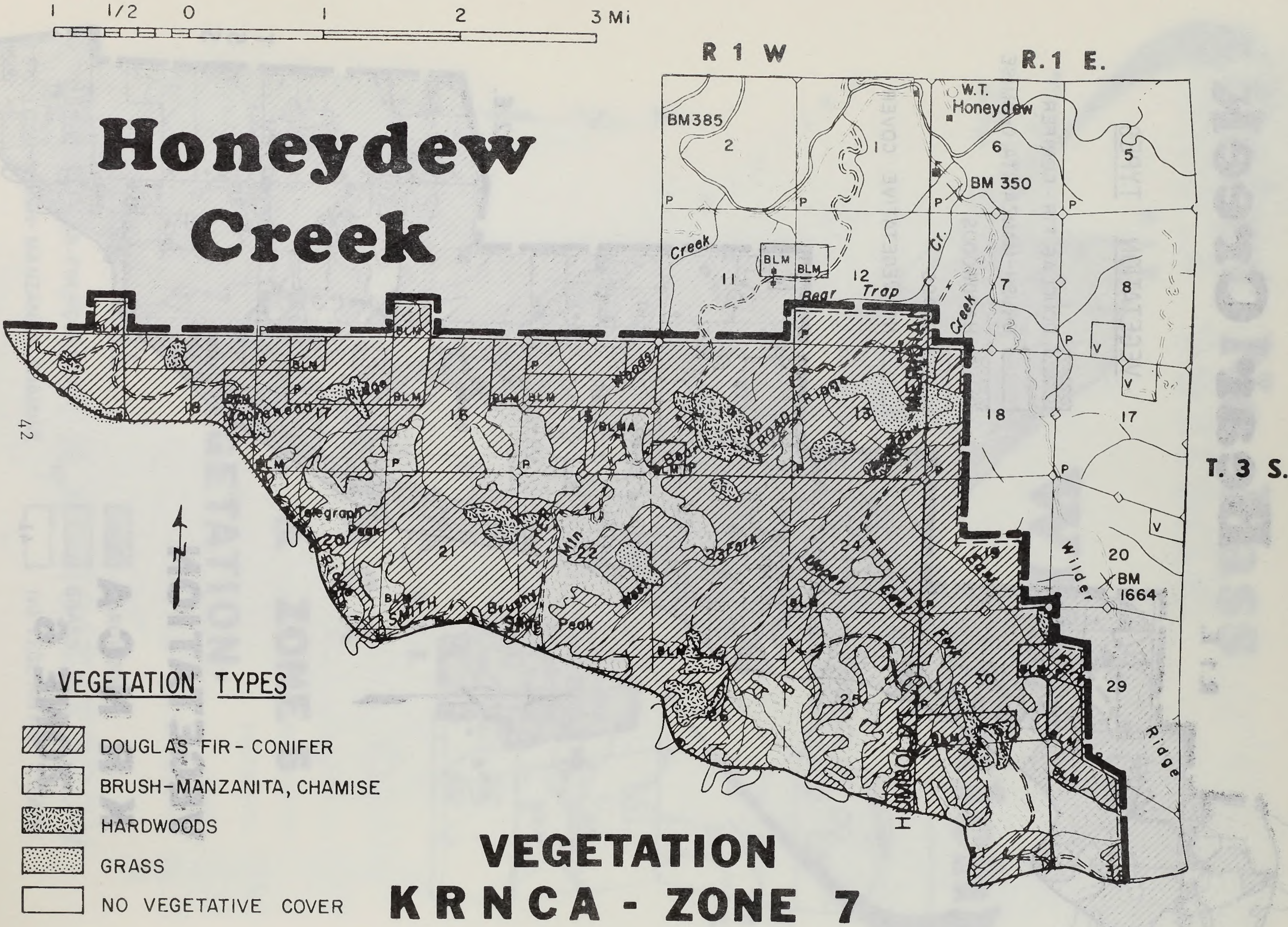


VEGETATION TYPES

- ▨ DOUGLAS FIR-CONIFER
- ░ BRUSH-MANZANITA, CHAMISE
- ▒ HARDWOODS
- ░ GRASS
- ☐ NO VEGETATIVE COVER

VEGETATION
K R N C A
ZONE 6

Honeydew Creek



VEGETATION
KRNCA - ZONE 7

KING RANGE NATIONAL CONSERVATION AREA

VEGETATIVE TYPES WITHIN PLANNING AREA

(estimated acreages rounded to the nearest 100 acres)

Zone	Douglas Fir Conifer	Northern Oak Woodland	Coastal Prairie	Barren	Total
1	-	-	200	100	300
2	14,800	5,300	2,100	800	23,000
3	1,900	300	1,000	300	3,500
4	2,000	800	300	500	3,600
5	700	400	100	100	1,300
6	9,800	1,900	300	-	12,000
7	8,600	1,600	300	-	10,500
TOTAL	37,800	10,300	4,300	1,800	54,200

9. Animals

The King Range National Conservation Area contains a unique mixture of terrestrial and marine habitat, supporting a wide diversity of animal species. Offshore rocks, kelp beds and tidal areas are inhabited by seals, sea lions and a variety of marine birds and play an important role in the life cycle of a variety of fish species. The terrestrial Douglas fir forest and coastal chaparral habitat types support populations of black-tailed deer, black bear, quail, blue grouse, and a wide variety of non-game birds and mammals. Numerous raptors and a variety of fur-bearers, such as river otter and mink occupy the area. Several threatened wildlife species have been observed in the area, including the brown pelican, bald eagle and peregrine falcon. A species list is included as Appendix B.

Terrestrial Wildlife. Black-tailed deer habitat relationships are keyed to the riparian and coastal habitat types, where cooler temperatures and available water are present during the prolonged drought period from June through September. Deer in the KRNCA are resident year-long, but populations do migrate altitudinally in response to weather changes and forage "green-up". During the period from October to May the grassland communities receive an influx of deer seeking succulent vegetation. The chaparral communities provide deer browse year-long.

There are no direct estimates of deer populations or herd composition parameters for King Range. The proportion of deer numbers to habitat acreage can only be estimated from the condition of the vegetation in the primary deer forage areas and concentration areas. Heavily used areas, such as riparian habitat and grassy openings, contain over 100 deer per square mile. More lightly used areas, such as the interior of the chaparral stands, contain over 10 deer per square mile. It can be concluded that the concentration areas are overpopulated and deer habitat is declining.

Black bear are present over the entire King Range, but are most often observed north of Big Flat and King's Peak. Bears prefer the Douglas fir forest, particularly the riparian areas where berry-producing shrubs are abundant. Huckleberry, raspberry and blackberry are widespread throughout the KRNCA, but are found in greatest profusion in cutover areas, which attract and concentrate bears.

Mountain lion are known to inhabit the KRNCA, but no population estimates have been made. Specific use areas have not been identified. Bobcat and coyote are apparently present in large numbers, based on observed sign and reports from local landowners.

California and mountain quail, blue grouse, gray squirrel, brush rabbit, black-tailed jack rabbit, mourning dove, and band-tailed pigeons constitute the upland game species in the KRNCA. All are distributed throughout the King Range, but each species demonstrates definite habitat preferences. Quail are most abundant in the riparian areas and nearby chaparral sites. Blue grouse are more specific to the Douglas fir forest and populations are concentrated in the northern half of the King Range. Gray squirrel prefer coniferous forest and hardwood habitats, concentrating locally in areas where canyon live oak and tanoak are most dense. Band-tailed pigeons roost within the coniferous forest, but their food preferences taken them to areas where manzanita and madrone berries are found. Mourning dove can be frequently observed along the grassy sections of the coastal beaches.

The entire King Range is apparently a wintering area for many raptors, particularly sharp-shinned and Cooper's hawks. Turkey vultures summer in the KRNCA and leave in September for more southerly wintering areas. No complete survey of osprey use has been made, but nests have been identified near the Mattole River, Big Finley Creek, and Bear Creek. Several osprey nests were destroyed north of Nooning Creek as a result of logging activities in the late 1960's.

Blue heron, river otter and mink are found in the immediate vicinity of the larger streams, in particular Honeydew Creek and the Mattole River.

Over 30 reptile and amphibian species, listed in Appendix B, have been identified. It is probable that many more inhabit the area.

Aquatic Wildlife. The Mattole River is the major inland terminus for nine tributary streams, whose headwaters lie within King Range. Additionally, twelve coastal streams flow directly into the Pacific Ocean. Many of these streams provide spawning and rearing habitat for steelhead, silver salmon and king salmon. About 80 miles of the King Range tributaries contain sufficient water to support fish populations. All of these streams are free-flowing, but contain some log jams and waterfalls which limit the passage of fish.

Coastal streams, those flowing directly into the ocean, arise high on the western slopes of King Range. Some headwaters approach the 4000-foot elevation. Stream gradients often exceed five percent and streams are often less than three miles in length. Stream bottoms are composed of large alluvial material, containing large amounts of rock and fines, that fill in pools and provides unsatisfactory salmonid spawning areas.

The inland streams flowing into the Mattole offer much better salmonid habitat. Drainages are larger and, while headwaters are often as steep as the coastal streams, the inland stream gradients moderate quickly so that there are long stretches of riffle area and sizeable pools. A summary,in the Resource Analysis, of the nine inland streams shows that they contain 75% of the King Range stream fish habitat, 96% of the total spawning area and 99% of the prime spawning and rearing habitat.

Rearing of juvenile steelhead and salmon occurs to some extent in most streams, but low summer water flows and high temperatures limit rearing capacity. Bear Creek and Honeydew contain numerous steelhead juveniles during the summer, since pool habitat and cool water temperatures are not limiting. Coastal streams also contain juvenile fish, but these migrate to the ocean immediately after the first high water in the fall.

Resident fish species are limited to sculpin and rainbow trout. Sculpin are present in every stream in low to moderate numbers. Use of stream habitat by resident rainbow trout is hard to determine because of overlaps with steelhead habitat. Whale Gulch is the only stream restricted solely to resident trout. Lampreys migrate into many of these streams and nests have been observed in Honeydew Creek.

No extensive quantitative studies have been made of aquatic invertebrates in King Range streams. The unit resource analysis contains information from Geological Survey studies of bottom organisms.

Marine Wildlife. There are 25 miles of coastline within King Range, providing areas of offshore rock, kelp beds, and tidal habitat. Offshore rocks are concentration areas for stellar and California sea lions, harbor seals, and a variety of sea birds. Rocks used as rookeries by cormorants are identified in the resource inventories. The entire coastline is utilized by marine wildlife, but Gorda Rock and the general Punta Gorda offshore area is an important concentration area for the stellar sea lion and other marine mammals.

Kelp beds are important to the life history requirements of many species of wildlife, particularly seals and sea lions. Preferred food sources include abalone, sea urchins, limpets, turban snails, dungeness and rock crabs, mussels and barnacles, all of which are associated with shoal areas and rocks interspersed with beds of kelp.

The coastal section from Big Flat to Horse Mountain was initially considered to be potential sea otter habitat, since sightings were reported at Shipman Creek. However, subsequent inventories indicated that sea otter habitat is marginal. The primary limiting factors are inadequate kelp beds, heavy seas, and a general absence of sheltered areas.

Threatened Wildlife Species. Threatened wildlife species in the KRNCA include the brown pelican and peregrine falcon. The bald eagle has been sighted in the area, but no nests have been identified. There is evidence that the spotted owl, a potential addition to the threatened species list, is present in the Douglas fir forests at the head of Honeydew Creek.

10. Ecological Relationships

One of the most significant relationships in the KRNCA is the successional pattern in the Douglas Fir Forest. This pattern typically follows a disturbance which apparently allows simultaneous seeding-in of the three major species. Madrone dominates the site first, attaining an average height of 15 to 20 feet and, upon its demise, the tanoak pushes through the dense crown canopy. When both hardwood canopies have deteriorated, the Douglas fir (which may be found in suppressed seedling and sapling form beneath the madrone canopy) takes over. Mature Douglas fir stands are, in many cases, particularly at higher elevations, devoid of any understory. The normal pattern must apparently include a disturbance following maturity of the Douglas fir if the resulting hardwood stand is to have an understory of conifers, for the latter will only seed-in on bare soil.

Competition between deer and livestock is a serious limiting factor along the coast. Compounding the effect of this factor is the gradual reduction in available forage, resulting from successional changes in the areas covered by hardwoods and chaparral.

The habitat requirements of the spotted owl includes old-growth stands of coniferous timber. The old-growth conifers provide nesting habitat that is critical to maintenance of the species.

11. Human Populations

The Shelter Cove subdivision contains several full-time residents (about 30 families) and an undetermined number of people live in the Whale Gulch area, (50-100). There are probably less than a dozen other full-time and seasonal residents scattered over the rest of the area. The total population in the KRNCA is estimated to be 185. In the immediate influence zone, as defined in the economic analysis, the population is estimated to be 1,215. A more detailed discussion of demography and factors influencing economic well-being can be found in the Economic Analysis of the KRNCA Proposed Management Plan and Program.

There are over 4,000 house lots in the Shelter Cove subdivision. It is estimated the family dwellings will continue to be built at a rate of 5 houses per year, based on experience of the past several years.

12. Recreation

Over 56,000 visitor use days occurred in the KRNCA in 1973. The major recreational activities, in order of relative magnitude, are camping, sightseeing, and ocean fishing. Swimming, backpacking, recreational vehicle use, hunting and hiking are other important recreational uses.

There are four small campgrounds (see map following page 79 of the Management Program) in the KRNCA, containing a total of 33 family units. There are 20 miles of hiking trails and 13 miles of multi-purpose road.

13. Aesthetics

The King Range Area has long been noted for its aesthetic qualities. The view of rugged mountains rising abruptly from the sea offers a scenic experience which is extremely rare along any coast. The more than 20 miles of undeveloped, nearly unroaded beach offers an experience of solitude which is also extremely rare along any coastline. The sounds on the West Slope are all the natural sounds of wind, waves and animals, with the exception of the Shelter Cove subdivision where man's activities are encountered. The smells encountered range from those of marine tidelands to forested areas of hardwoods, conifers and shrubs.

East side views are those of forests and brush-covered mountains, interrupted by previously logged areas where rehabilitation was unsuccessful or not attempted. The scenic attributes of this area are not as high as on the West Slope. However, there are mountain streams which are relatively clear during summer seasons, scenic rock cliffs and large expanses of unbroken forest canopy.

14. Human Interest Values

The King Range Area is very interesting geologically, due to the relatively recent uplifting and still forming hills and slides. The thin soil mantle in the formation stages could serve a useful function in research on soil formation. Some threatened species of animals such as brown pelican and peregrine falcon can be observed in the Area.

The King Range Area is also rich in archeological values. There are several known areas which hold remnants of coastal Indian cultures such as burial grounds, campsites and middens. There are some potential areas where further studies may uncover additional archeological values. The National Register of Historic Places was consulted and a check was made with the State Historic Preservation Officer to determine whether any sites listed on the National Register or proposed for nomination would be impacted by the Management Program. There are no such sites in the KRNCA.

15. Environmental Disturbances

There has been considerable disturbance to the environment within the King Range boundary over the past several years.

a. Subdivision

Probably the most notable environmental impact is the Shelter Cove subdivision development. Many miles of surfaced road have been constructed on quite steep side slopes and in very unstable soil types. These actions by man have apparently triggered several landslides and slumps.

b. Logging

Much of the private land in the Mattole River drainage (Zones 6 and 7) has been heavily logged. There are few buffer strips left along the streams and in many cases considerable damage has occurred directly in the stream channel. Streams are exposed to direct sunlight and have noticeable amounts of debris blocking water flow and fish movement.

c. Roads

Logging roads were often constructed very near the stream. This has caused substantial amounts of sediment to accumulate in several tributaries of the Mattole River.

d. Burning

For many years, ranchers along the north end of the King Range (in Zones 6 and 7) have practiced brush burning. This frequent (often annual) burning is intended to improve grazing. The practice has changed the ecologic balance of the area. Significant erosion has been caused on the slopes and increased sediment has been deposited.

e. Instability

Geologic information indicates that the area is relatively young geologically and that it is extremely unstable. Roads provide a good insight into the soil type and stability in general. Road cuts and fills are very slow to stabilize and require a great deal of maintenance. The visible scars remain for years. The Honeydew Road constructed by BLM in 1963-66 in Zone 7, has caused some plainly visible cutbanks, several slides and considerable movement of soil and debris into streams. It is just now becoming somewhat stabilized.

f. Landslides

Some logging has occurred on the ocean side of the range. The visual scarring and apparent slow revegetation of these areas has left some clearly visible openings in the vegetative cover. These openings are readily seen from both the ridgetop trail and some beach areas.

g. Mining

Mining activity has caused considerable disruption at the Queen Peak mine, through both excavation at the mineral site and construction of access roads to the site. Again, the soil type and instability have resulted in visual impacts, loss of vegetative cover and apparent siltation and sedimentation in streams on the Mattole drainage.

B. Probable Future Environment Without This Proposal

The King Range Area is in transition from the post-war development boom to an uncertain future. Reflecting the statewide situation, the future of the Area will be greatly affected by the mass of federal and state environmental legislation that developed in the late 1960's and early 1970's. Increasingly stringent regulation of development is already having observable impacts on the California coast, as in the case of the Coastal Zone Conservation Act. Economic changes and fluctuations in the supply of energy resources have already begun to result in some changes in lifestyle. While the ultimate extent of these changes is unknown, some change in the future of rural California can be anticipated.

Taking the inherent uncertainty associated with prediction of future change into account, it is still possible to make assumptions and reach some conclusions about the future environment that would exist in the absence of the proposed Management Program.

It is assumed that the future environment would essentially be similar to the status quo, as modified by the continuation of present trends in land use, resource development, and environmental controls. The land ownership pattern, an intermingling of national resource lands with private ownerships, would remain substantially unchanged. Actions are not likely to be coordinated, but would take place in accordance with the objectives and capabilities of each individual landowner. The primary objective of most private landowners can be expected to be short-term profit maximization. In the past, meeting this objective has resulted in extensive subdivision, road construction, essentially uncontrolled timber harvesting, and land clearing and burning. It can be anticipated that timber will be harvested as soon as it reaches merchantable size, that interest in subdividing will resume if the second-home market again becomes firm, and that land clearing and burning will continue.

III. THE ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

A. Area-wide Impacts

The proposed King Range Management Program will implement the provision of PL 91-476, an Act to establish the King Range National Conservation Area. The implementation of this program will affect the environment of the King Range in several ways. Establishment of the Area's boundaries will define the area within which the provisions of the Management Program will be implemented.

Identification of zones sets the framework of primary and secondary uses on a specific geographic base within which standards of compatibility may be applied. The planning process, leading up to the identification of zones, was based on an inventory of resource capacity and environmental elements. Zoning, therefore, determines to a considerable extent the environmental impacts that will occur in the Area. Many of the actions included in the Management Program apply to the entire KRNCA or to several zones within the Area. The impacts of these actions are addressed in the following discussion, after which consideration is given to the significant impacts that will occur in the various zones.

It is not feasible to identify or adequately address the environmental impacts of the many hundreds of individual actions proposed in the plan. For instance, several hundred stream clearance projects are proposed. Analysis of their environmental impacts must await plan implementation. Additional environmental statements will be prepared if it is subsequently determined that the specific actions will cause significant environmental impacts.

1. Impact on Recreation

The King Range is an area of unique recreation values. The most prominent of these is the juxtaposition of rugged mountain slopes with 30 miles of remote, undeveloped ocean beach. The State's "California Coastline Preservation and Recreation Plan" terms the King Range "an outstanding example of several geologic features and biotic communities."

The King Range Area is one of a relatively few stretches of publicly-owned beaches in Northern California that have been extensively used by recreation vehicles.

There are national resource lands in three of these areas and several others are included in the Humboldt County park system.

The beach and the fish, birds and animals along it are the major attractions for most people visiting the King Range. The upland ridges of the range also attract people because of their scenic values, but the rugged terrain attracts less active use. Major recreational facilities in the proposal are shown on the maps of Zones 1, 2 and 3, following page 79 of the Management Program.

Estimates of current recreation use indicate that over 56,000 visitor use days occurred in the King Range Area over the past year. General recreation use is by far the major component of visitor use figures in the KRNCA, followed by sightseeing and ocean fishing. Backpacking, hunting and hiking are also important and growing recreational uses. The Bureau has constructed four campgrounds. with a total capacity of 33 family units, 20 miles of hiking trails, and 13 miles of multi-purpose road to accommodate these uses. There is also a privately operated campground at Shelter Cove.

Projections indicate that recreation use will increase at a rate of 5 percent annually in the absence of any further action to establish the Area or develop additional facilities. Publicity associated with the proposed establishment of a National Conservation Area and development of planned recreational facilities would change the projected annual rate of increase in the first five-year period to 20 percent, then dropping off to a 10 percent annual growth rate.

The projected doubling of recreation use in the next five years will lead to increased congestion along the coastal strand and at some times in the inland zones, detracting from the mood of isolation, characteristic of the Area, and the enjoyment of the recreation experience.

2. Impact on Water

Water yield is currently estimated to be 82% of total precipitation, while consumptive use is inconsequential. The area-wide actions will have no significant impact on the quantity of water produced.

Sediment production is primarily generated by the cutting of streams at the toe of colluvial deposits. Currently, 80% of the sediment load is a product of natural erosion. Construction of 37 miles of new road and reconstruction of 30 miles of existing road will, at least temporarily, increase sedimentation. Careful road design and close supervision of construction can minimize sediment production. However, a significant increase in sediment production will occur, given the inherent instability of geology and soils in the King Range, during construction and will continue until slopes are stabilized, which may require 15-20 years. Mining regulations will reduce the impact of mineral exploration on sedimentation.

The restrictions on use of mechanized fire control equipment in Zones 2 and 4 will lessen the likelihood of increases in sedimentation on the coastal slopes. However, natural sediment production is so great on the Pacific Slope that this decrease in sedimentation will not be significantly noticeable.

The removal of log jams on 35 miles of stream may cause bank-caving and an increase in sedimentation. Since most of this work will be accomplished through use of hand labor, sediment production will be minimized. Timber harvest, road construction and recreation development will be prohibited within 1/4 mile of Honeydew Creek, Big Finley Creek, and Bear Creek to protect possible bald eagle and osprey use areas. This action will ensure maintenance of a vegetative screen along the largest streams within the KRNCA and will reduce sedimentation.

The North Coast Regional Water Quality Control Board has established water quality objectives for the North Coastal Basin, an area which includes King Range. One of these objectives is that turbidity not be increased more than 20 percent above natural background levels. Because of the steep topography, unstable soils and high precipitation in the King Range, it is likely that road construction activities will result in temporary increases in turbidity above this level. Careful design and construction techniques can reduce the probability of this occurrence, but cannot eliminate it.

3. Impact on Soils and Vegetation

Vegetation in the King Range falls into three plant communities - Douglas Fir Forest (70%), Northern Oak Woodland (19%), and Coastal Prairie (8%). An additional 3 percent of the Area, primarily landslides, beaches and flood terraces, is classified as barren.

The Area has the capacity to produce 5.8 million board feet of timber on a sustained yield basis, considering both public and private land. However, only about one-third of this potential (1.9 million board feet) will be available for harvest annually because of the planned curtailment of timber harvest in the westside zones, as well as reservation of streamside and scenic buffer strips and use of partial cutting systems on the remainder of the area. Management for timber production is planned on only the east slope of the range, in Zones 6 and 7.

The unavailability of the timber resources of the westside zones, resulting from implementation of the program, will affect employment. The extent of this effect has not been determined, but is estimated to be negligible.

Exclusion of timber harvest in Zones 2 and 4 will protect soils and site productivity. Erosion losses will be presented, since disruption of vegetation cover will be precluded.

The area presently supports over 3,000 animal unit months of livestock grazing use. The Management Program will not significantly change the amount of forage available but will reduce the season of use from 12 months to 6 months.

The Management Program includes extensive provisions for revegetating and stabilizing presently eroding watersheds and restoring timber sites to a production condition. Almost 2600 acres will be reforested in Zones 2 and the eastside zones. Brush conversion and planting will be carried out on 400 acres of timber soils (Josephine, Hugo, and Usal) that are presently covered with chaparral. Watershed stabilization practices- cross drainage, outsloping, fertilization and seeding - will be carried out on almost 1200 acres of abandoned roads and skid trails.

Construction of 37 miles of road in the westside zones will permanently remove 180 acres of vegetation. Construction of the planned recreational facilities and parking areas will entail removal of approximately 100 acres of vegetation.

4. Impact on Wildlife

Terrestrial Animals: Raptor habitat will be protected within 1/4 mile of Big Finley, Bear and Honeydew Creeks until the status of raptor use in these areas can be determined. Bald eagle have been observed in the Area and osprey nests have been sighted along these streams. This action will preserve raptor habitat, including potential habitat for the bald eagle - a threatened species. It will also have a beneficial impact on other species, for example otter, mink and blue heron, that are dependent upon streamside habitat.

The entire King Range provides winter habitat for raptors, such as the sharp-shinned and Cooper's hawk. The spotted owl is present in the headwaters of Honeydew Creek. Turkey vultures utilize the Area in the summer. Osprey are known to nest along the Area's streamcourses and bald eagles have been sighted and the peregrine falcon is suspected to be present. The provisions of the plan that call for preserving raptor habitat and prohibiting disturbing activities near nests will help maintain a portion of the dwindling habitat of these species.

The effect of increased recreation use upon wildlife will vary from zone to zone, since attractions for recreation use vary, but it will have a potentially significant adverse impact upon raptors and wildlife species, such as the mountain lion and bald eagle, whose habitat requirements include remoteness from human presence.

While little data is available on populations or territorial use area, mountain lions are known to occur in King Range. These animals are extremely secretive and intolerant of human presence. Road construction, by opening up previously inaccessible areas, may adversely affect the animals.

Aquatic Animals: Approximately 80 miles of the King Range streams contain sufficient water to support fish populations. The nine eastslope tributaries of the Mattole, in particular, provide important spawning and rearing habitat for steelhead, silver salmon and king salmon.

The Management Program provides for clearance of stream-blocking log jams on 35 miles of the King Range streams, increasing available spawning and rearing habitat by approximately 50 percent.

Sedimentation, resulting from construction of 37 miles of road in zones 6 and 7 may adversely affect anadromous fisheries in Honeydew and Bear Creeks. The extent of this effect is open to question. Some Bureau fisheries biologists believe that, within reasonable limits, the annual natural flushing of these streams is sufficient to maintain habitat conditions at a relatively stable level.

Marine Mammals: Increased recreation use of the area greatly increases the potential for disturbance of marine wildlife species in the opinion of Bureau wildlife specialists. The area, offshore Punta Gorda, is a concentration area for stellar and California sea lions, harbor seals and marine birds. Up to 1 sea lion carcass per mile has been found along King Range beaches, some with evident bullet holes. Allowing recreational use along the beach in Zones 1, 2 and 3 will increase human - animal contact and possibly increase the shooting of these animals. Nesting of marine shorebirds, such as killdeer and sandpipers, could be particularly disrupted by vehicle use during spring and early summer, but such general recreation uses as hiking can also disturb nesting birds.

5. Impact on Human Populations

One measure of the environmental impact of an action is its effect upon the capability of a community to provide essential services. In the case of the KRNCA, the acquisition of 17,000 acres of private land will have an impact on community well-being. Land acquisition through purchase would result in removal of land from the property tax rolls; whereas exchange of lands within Humboldt and Mendocino Counties would not have the same effect. A more detailed discussion of these effects can be found in the Economic Impact Analysis of the King Range National Conservation Area Plan and Program, but they are synopsized here.

By the provisions of the King Range Act, all exchanges must be for properties within the same county. Since parcels exchanged would be approximately the same value, the net effect upon the tax rolls of an exchange should be negligible. However, when exchanges involve parcels in different school districts, there would be a resulting redistribution of taxable property value between the districts. Private ownership in the KRNCA will decrease from an original 44 percent to about 12 percent in 1968. Additionally, when an exchange involves a nontimbered parcel exchanged to the government for a parcel covered by mature timber, there may within a few years be a net loss of the county tax rolls. This would result if the timber were harvested and the assessment of that parcel was subsequently reduced in accordance with California law.

A compensating factor would be the payments which go to the county when the BLM sells timber within the county. By law, 5% of the sale price of timber from the BLM lands goes to the county. This may result in annual payments to Humboldt County in the amount of $12,000. The county and school districts may also gain tax revenues through increased assessments resulting from increased property values of lands adjacent to the government-owned lands. This could readily result as the benefits of the plan implementation begin to be realized. Permanent ownership tenure, land rehabilitation, fishery habitat improvement, improved access, and coordination of land use in the King Range National Conservation Area would yield spillover benefits, or external economies, to the private landowners and residents both inside the Area boundaries and those in the surrounding vicinity. Independent appraisal reports indicate that the passage of the King Range Act and subsequent activities have already resulted in a significant increase in some property values and assessments.

6. Impact on Minerals

The mineral development potential of the KRNCA is limited. Extensive mineral inventories indicate that the only mineral that has been produced in a significant quantity is manganese, from the Queen Peak Mine in the Bear Creek drainage on the east slope of the King Range in Zone 6.

Acquisition of private lands within the KRNCA will increase the potential availability of lands for mineral exploration and development because these lands will be opened to the operation of the mining laws. Over 17,000 acres of land are scheduled for acquisition, but a significant proportion of this acreage lies in zones where mineral development will be restricted to meet plan objectives and ensure compatibility with primary uses.

The proposed Management Program will have no significant effect upon the possible future resumption of mining at the Queen Peak Mine.

The proposed mining regulations will allow mineral development in areas where it is compatible with primary uses. Exploration may be permitted in areas, such as Zones 2 and 4, where primary uses preclude mineral development. However, mineral exploration in these areas may be restricted to allow use of only nonmechanized equipment and preclusions of surface disturbing activities. This may discourage mineral exploration in these areas. In all zones, mineral exploration and development will be governed by restrictions necessary to meet the plan's objectives and avoid conflicts with primary uses.

7. Impact on Historical, Archeological and Natural History Values.

A check was made of the National Register of Historic Places and the State Historic Preservation Office was consulted to determine whether any sites listed on, or in the process of nomination to, the National Register were located in the KRNCA. There are no sites in the KRNCA that have either been placed on the National Register or have been nominated.

The King Range Area contains many archeological values. The planned surveys of archeological and historical resources will help ensure that these values are identified and protected so that inadvertent destruction will not occur. Early completion of these surveys is essential, since factors, such as the projected increase of over 100 percent in recreation visitor use, will greatly increase the risk of destruction of these cultural resources or removal of them from their cultural context.

B. Specific Impacts of Zone Designations and Actions Planned Within Each Zone.

1. Zone 1 - Punta Gorda

This zone includes over 3,300 acres, if the lands within the proposed KRNCA boundary adjustment are considered. The primary use of this zone is recreation. Secondary or collateral uses are wildlife and livestock.

a. Impact on Recreation

Recreation activities in the zone are centered around the abandoned lighthouse at Punta Gorda, parking, picnicking, and camping facilities at the mouth of the Mattole, and approximately 6 miles of beach.

Vehicles will be permitted to use the beach between the mouth of the Mattole and Punta Gorda, a stretch of about 3 miles. Recreation vehicle use can pose a hazard to other users, such as picnickers, hikers and campers. The Management Program separates these uses and, therefore, minimizes the conflict between recreation users.

Prohibiting recreation vehicle use south of Punta Gorda (approximately 3 miles) will help prevent disturbance of the marine mammals, as well as enhance the viewing of these animals by recreation users.

b. Impact on Soils and Vegetation

The beach area is constantly washed by the tide, causing unstable slopes immediately behind the beach. Cutting and washing causes a constant undertow cutting of the slopes and changing the angle of repose.

Vegetation in the Area is divided into two types: a perennial grass type dominated by velvet grass and California oatgrass, and an annual grass type dominated by wild oatgrass and dogtail grass. Heavy grazing and conversion from timber to grass has affected plant composition and density. A deferred grazing system will be implemented, allowing 117 sheep to graze the area from June 1 to October 31, each year (117 AUM's). This system is designed to favor establishment of California oatgrass, a perennial species. Removal of sheep grazing from the beach, which is part of the plan, will lessen conflicts between livestock and recreation users and will decrease the present total impact on beach vegetation. Development of recreation facilities will involve disturbance of approximately 40 acres of vegetation. The impact of this development will be negligible, except on the immediate site.

c. Impact on Water

Development of recreational facilities for parking, picnicking and camping is planned at the mouth of the Mattole River and a 1- or 2-acre parking area is planned at Punta Gorda, with water and sanitary facilities planned for development in the vicinity of the lighthouse. Discharges affecting water quality would be in contravention of the designation of the ocean waters as Areas of Special Biological Significance because this designation allows absolutely no discharges affecting water quality. These facilities will not discharge into the river or ocean; therefore, the impact on water quality is expected to be minimal.

d. Impact on Wildlife

The offshore waters in this zone are concentration areas for stellar and California sea lions, and a variety of marine birds. Allowing recreational vehicle use along the beach will increase human-animal contact and increase the possibility of destruction of these marine animals.

Nesting of marine shorebirds, such as killdeer and sandpipers could be particularly disrupted by recreational use during spring and early summer. Recreational vehicle use would increase the probability of actual nest destruction, but hikers would also disturb nesting birds.

2. Zone 2 - West Slope

The zone covers about 23,000 acres. The primary use is recreation. Secondary uses are watershed, wildlife fisheries and livestock grazing.

a. Impact on Recreation

Development of parking facilities at the end of the Smith-Etter road and primitive camping facilities, at presently undetermined locations, will protect the relatively unspoiled character of the beaches, while allowing recreational enjoyment of the shoreline.

The feeling of isolation along the coastal strip is one of the major attractions of the KRNCA. Overcrowding by recreationists will detract from the quality of the recreation experience.

b. Impact on Soils and Vegetation

Soils in this zone are highly susceptible to erosion. Major earthslides and slips in the zone have been attributed to earthquakes (the San Andreas fault lies just offshore). Slopes are steep and past human disturbances have exposed soil surfaces. Heavy precipitation has quickly led to gully cutting and rill erosion on these areas.

Over 10 miles of abandoned roads and trails will be stabilized and revegetated, and approximately 1800 acres of cutover land will be revegetated. These actions along with implementation of grazing systems on over 2500 acres will increase ground cover and reduce presently occurring erosion.

About two-thirds of this zone lies within the Douglas fir community, another one-fifth is classified as Northern Oak Woodland, and the remainder is divided between Coastal Prairie and unvegetated areas. Many of these barren areas are colluvium.

Developments on the west slope will be limited to preserve the primitive quality of the Area. This limitation will reduce the potential for future soil erosion.

The restrictions on surface disturbing activities in this zone will help maintain the continuity of vegetative cover. Grazing by domestic livestock and wildlife are the primary consumptive uses of the Area. The potential of the grazing land in this zone is estimated to be 1.1 acre/AUM. This capacity assumes maintenance of a continuous, vigorous stand of perennial and annual grasses.

Roosevelt elk will be introduced into the Big Flat area. These animals were historically present in the King Range, but were exterminated in the early 1900's. There is a potential for overgrazing in the Big Flat area, because of competition between the elk and domestic livestock. This potential is recognized in the plan, and it calls for elimination of livestock grazing in this area if it is established that such grazing conflicts with reestablishment of elk.

c. Impact on Wildlife

Reintroduction of Roosevelt elk into an area, historically used by elk, will broaden the range of these animals in California, presently limited to northern Humboldt and Del Norte Counties. This reexpansion of the elk's historic range will help ensure the stability of California's small population (2000 animals) of Roosevelt elk. Because of differing food preferences and the limited area utilized by elk, serious competition between elk and deer is not anticipated.

The zone is a fawning area for deer and many wildlife species concentrate along the coastal strip during the summertime to take advantage of the cooler temperatures, greater water availability and more succulent vegetation. Sea lions, seals, marine shorebirds, and tide pool species are abundant in this area. The Kaluna Cliffs area is suspected to be nesting habitat for the peregrine falcon, a threatened wildlife species.

Exclusion of mechanized use along the beach will lessen the possibility of contact between humans and terrestrial, as well as marine, animals, thereby protecting these species from disturbance or destruction.

d. Impact on Water

Revegetation of areas of past soil disturbance will decrease sedimentation. Over 1300 acres of cutover lands and slides and 16 miles of abandoned road will be revegetated. Conifers will be planted where feasible.

Prohibition of timber harvesting and road construction will reduce the possibility of future increases in sedimentation. The steep, rugged slopes and shallow unstable soils in this zone ensure that any soil disturbing activities will result in significant increases in sedimentation and bring turbidity levels above those specified in the North Coastal Regional Water Quality Control Plan.

e. Impact on Minerals

Minerals development will be adversely impacted by the requirement that only nonmechanized methods be employed in prospecting and exploration.

f. Impact on Archeological Resource

The zone has a high potential for archeological resource values. Several shell mounds have been found along the coast and it is known that aboriginal populations inhabited the coastal areas, on at least a seasonal basis. Restriction of development and exclusion of mechanized vehicle use will have a significant beneficial impact on these values by ensuring maximum protection until the planned archeological surveys are completed.

3. Zone 3 - Shelter Cove

This zone encompasses approximately 3500 acres. The primary use is residential and the secondary use is recreation.

a. Impact on Human Populations

The establishment of the recreational vehicle area, running from Telegraph Creek to Gitchell Creek, will lead to some conflicts between recreational vehicle use and residential use by the homeowners at Shelter Cove. Under present uncontrolled conditions, vehicle use along Shelter Cove's roads has resulted in complaints about speeding and excessive noise. Speeding on residential streets, in particular, poses a serious safety hazard. Establishment of the recreation vehicle use area will legitimize this use and maintain the potential for conflicts between recreationists and homeowners.

b. Impact on Recreation

Acquisition of public rights-of-way to the beach in this zone, establishment of areas for mechanized vehicle use, nonvehicle use, ocean fishing and observation, and development of parking areas at Black Sand Beach and Point Delgada will make significant areas of beachfront available for recreational use.

c. Impact on Air Quality

Motor vehicle traffic is heavier in this zone than in any other area of King Range. However, traffic is still very low and climatic conditions are such that the impacts of the planned actions on air quality are insignificant.

d. Impact on Soils and Vegetation

Road construction and land clearing activities in this zone have resulted in serious erosion problems in the past. Regulation of development in this zone is the responsibility of state and local governmental bodies. The Management Program will have no impact on erosion from construction activities. The recreation facilities developments planned (parking areas at Point Delgada and Black Sand Beach) will not have a significant impact on soil erosion, because construction will take place on the relatively stable soils on the level area above the beach. Recreation vehicles will utilize existing paved roads within the zone and the sandy beaches which, although unstable, are primarily modified by natural forces.

Clearing of the parking areas will have a negligible effect on the grasslands within this zone.

e. Impact on Water

The ocean waters have been designated as an Area of Special Biological Significance (ASBS), a designation that greatly restricts discharges into these waters. The Shelter Cove subdivision presently discharges effluent into the ocean, after secondary sewage treatment. The ASBS designation may require installation of more advanced treatment facilities, but this determination is a responsibility of the North Coast Regional Water Quality Control Board. The plan will have no effect upon this situation. Design of planned sanitation facilities in this zone, at the recreational use areas, will be constrained by the ASBS designation. The impact on water quality of these facilities will be negligible.

4. Zone 4 - Point No Pass

This zone covers over 3400 acres. The primary use is primitive recreation and the secondary use is watershed protection.

a. Impact on Recreation

The primary use designation of this zone is consistent with the primitive, relatively undisturbed character of the landscape. The Management Program, by precluding development,will help preserve this character.

b. Impact on Water

Slopes in this zone are extremely steep and slumps and slides are common. Streams in this zone plunge directly into the ocean, often within one mile of their source. Management of this zone as a primitive area will exclude uses which have a potential for increasing sedimentation.

Recreation use of this zone could potentially result in an increase in water pollution. It is doubtful that recreational use would ever be heavy enough to have a significant effect on water quality.

c. Impact on Soils and Vegetation

This zone includes a relatively large proportion of unclassified soils. Most of these soils are found along the shore, where steep slopes plunge directly into the ocean. These soils are primarily colluvium, talus and rock outcrops. The management of this zone, by eliminating surface-disturbing uses, will restrict erosion to that resulting from natural transport of materials.

d. Impact on Animals

Animal populations in this area will fluctuate in relation to the condition of their habitat. Deer populations should remain stable, since the planned management of this zone essentially coincides with present management. The steep, rocky terrain limits man's activities and the present, essentially primitive character of the area attests to this fact. Because of the strong preference of the mountain lion for areas remote from human presence, the area should meet the habitat requirements of this species.

e. Impact on Human Populations

Roughly 50 people reside in the portion of the Whale Gulch area that is within the KRNCA boundary. Most of these people follow alternative life styles. Management of the adjacent Point No Pass area as primitive should be in harmony with the attitudes and expectations of the residents of Whale Gulch.

f. Impact on Minerals

Mineral exploration and development will be severely curtailed. Prospecting and exploration will be limited to nonmechanized equipment. No prospecting will be allowed, if significant environmental impacts are discovered,unless a separate environmental impact statement is prepared.

5. Zone 5 - Whale Gulch

This zone contains almost 1300 acres. The primary use is residential. Recreation is the secondary use.

Lands in federal ownership, in this zone, occupy 160 acres, or 13% of the total area in the zone. No actions are proposed in the zone, except possible future acquisition of lands along the Zone 4 boundary to allow expansion of the Point No Pass primitive area. The zone designation and proposed action will have no significant environmental impacts.

6. Zone 6 - Bear Creek

This zone, on the eastside of the King Range, includes about 12,000 acres. Intensive forest management is the primary use. Watershed, wildlife fisheries, recreation, minerals and wildlife are secondary uses.

a. Impact on Soils and Vegetation

Construction of 25 miles of road in this zone will inevitably result in some increase in erosion and sedimentation, as will logging of 1.9 million board feet annually (in Zones 6 and 7). The sediment increase will be temporary. While proper design, construction and maintenance of roads will minimize erosion and sedimentation, some increase is unavoidable.

Several actions are planned which will reduce present erosion. Rehabilitation of 658 acres of eroding logging roads and skid trails, stabilization of the Queen Peak Mine, improving drainage on 6 miles of existing road and planting of 440 acres of cutover land, will reduce sedimentation. Man-caused erosion is accountable for 90 percent of stream siltation in parts of this zone.

While the allowable cut is not calculated by zone, the total 1.9 million board foot allowable cut will be taken from this zone during the next 5 years. Most stands in the zone are even-aged Douglas fir indicating an even-aged management system employing clearcutting, although some stands lend themselves to selective logging. The allowable cut is also predicated upon the use of such intensive forest management practices, as commercial and precommercial thinning, fertilization, and use of genetically improved planting stock. Brush conversion, presently not economically justified, would be employed if stumpage values increased. All forest soils will be employed for maximum timber production. The proportion of hardwood species on these sites will be reduced, and the earlier seral stages of plant succession will be bypassed in favor of early dominance by the climax species - Douglas fir.

b. Impact on Water

This zone lies on the Bear Creek drainage, which drains an estimated 55,300 acre feet of runoff into the Mattole River annually. There is essentially no use of this water, either within the KRNCA or outside, in the Mattole Valley. Timber management activities may increase runoff, but the increase will be slight in proportion to present runoff. This increase will have no significant effect upon flood flows.

Recreation vehicle use will be allowed on roads and trails within this zone. Although this use can result in increased sedimentation, there will not be a significant impact in this zone because roads showing evidence of erosion or potential erosion hazard will be closed to vehicle use.

Controlled burning and reseeding are planned as an experiment to improve wildlife habitat on 64 acres in the Bear Creek drainage. This action may temporarily increase sedimentation, until vegetation becomes reestablished.

c. Impact on Minerals

This zone includes the existing Queen Peak Manganese Mine. The primary use of the zone is intensive forest production. Mineral development will be allowed, but will be constrained by restrictions necessary to protect the primary use.

d. Impact on Animals

Management in this zone entails replacement of old-growth timber by young trees and associated vegetative species. Animal species, such as blacktailed deer and black bear, that are associated with earlier successional stages of community development will be favored by this action. Woodpeckers and other species whose habitat requirements are tied to the availability of mature timber will be adversely impacted.

Bear Creek provides important spawning and rearing habitat for salmonid species. Increased sedimentation, primarily from logging and road construction, will have an unknown effect upon the habitat of these species. Some Bureau fisheries biologists believe that, within reasonable limits, the annual natural flushing of these streams is sufficient to maintain habitat conditions at a relatively stable level.

7. Zone 7 - Honeydew Creek

The zone contains over 10,000 acres. The primary use is wildlife, while secondary uses are fisheries, forestry, watershed and recreation.

a. Impact on Wildlife

The zone provides habitat for many wildlife species, including blacktailed deer, black bear, osprey, bald eagles, accipiter hawks, the red-backed tree mouse, and the spotted owl, a potentially threatened species. Mountain lions are suspected to range over the Area.

The Management Program indicates that no timber sales will be planned in this zone for the first 5 years, until a detailed inventory can be completed. If the inventory verifies the presence of these species, particularly the spotted owl, restrictions will be placed on those activities that might detrimentally affect wildlife.

The planned management of this zone will protect wildlife species and their habitat, particularly potential threatened species.

b. Impact on Soils and Vegetation

The zone contains about 9800 acres, classified as a Douglas fir climax type, of which 1400 acres will be reserved from cutting for at least 5 years, and perhaps indefinitely if their suspected value for wildlife is confirmed. Much of the old-growth timber on private lands in this zone was logged off in the 1960's and 1970's. Reforestation of 274 acres of this land is planned. An additional 80 acres of brush conversion and tree planting is planned. The impact of these actions will be to place lands, that are presently occupied by chaparral and hardwoods, into a timber-producing capacity.

c. Impact on Water

The Honeydew Creek drainage heads at Kings Peak (4087') and rapidly drops over 5 miles to its confluence with the Mattole River (elev. 350'). Due to the steepness of the watershed, streamflow is flashy - high peaks of short duration occurring shortly after precipitation ceases. Although there is a potential for concentration of runoff and flooding, the planned actions will not have a significant impact on these parameters. Fourteen percent of the timbered lands will be reserved from cutting, to protect wildlife species. This area lies in the headwaters of Honeydew Creek, in the areas where runoff is concentrated from several tributary streams.

Skid trails and logging roads found throughout the area have increased runoff and sedimentation. Soil slips have occurred at road cuts and gullies have formed in skid trails. Watershed stabilization of 535 acres and improvement of drainage on 16 miles of existing roads will decrease sedimentation in this zone.

IV. MITIGATING MEASURES INCLUDED IN THE PROPOSED ACTION

The King Range Management Program is designed to provide lands and resources to the public for use under a program of multiple use and sustained yield. To a great extent, the actions included in this plan are designed to correct adverse environmental impacts that are a result of past actions.

Stream clearance and rehabilitation projects will be carried out during periods of low stream flow and heavy equipment will not be utilized in stream clearance. These provisions will reduce potential stream sedimentation.

By following Bureau standards on road location, design and construction, erosion and sediment production from road construction can be reduced. End hauling of waste material will be required on steep side slopes. Cut banks and fill areas will be seeded.

In areas where intensive timber management is planned (Zones 6 and 7), several measures will be taken to mitigate environmental impacts. Tractor logging will be confined to slopes under 40 percent. Suspension or aerial logging systems will be used on steep slopes with erodible soils. Streamside buffer strips will be left along all streams in the area.

Several options could be taken to mitigate the effect of increased recreation use: An evaluation will be completed during the first 5 years of the plan to determine the need for, and feasibility of, these measures.

A permit system could be established, limiting the number of recreationists in the area at any one time to a pre-determined capacity. Under this system, users would obtain permits at the Thorn Junction or Honeydew Visitor Centers before entering the area. Enforcement of the permit requirements would require increased patrolling of the area.

One of the undesirable features of the permit system is that people must travel many miles to the area before finding out whether permits are available. Establishment of a reservation system would alleviate this problem. Increased manpower for patrolling would still be required.

An additional proposal would eliminate parking facilities in the area, establish a central parking area, and run shuttlebus service to trailheads. While this action would not limit the total number of users, it would give some measure of control to the dispersion of recreation users throughout the the area.

Establishment of a visitor information system and an interpretive program will increase the using public's appreciation of the unique values of the area. This will lessen the the magnitude of litter and vandalism problems. Establishment of cooperative cleanup programs with civic and conservation groups has been effective in other areas in reducing litter and maintaining aesthetic values.

Building a fenced enclosure around the Roosevelt elk introduction area at Big Flat will lessen the possibility of conflict between elk and livestock grazing.

V. ADVERSE IMPACTS THAT CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED

The Management Program results in restriction on, or prohibition of, such uses an mineral extraction, overland vehicle travel, and maximum development of forest and rangeland resources in particular zones within the KRNCA. It is clear that despite mitigating factors, a reduction in the potential spectrum and volume of uses will occur in the Area taken as a whole. There is little reason to believe that demand for most of these uses will decrease; rather it will tend to be focused on other lands, with possible corresponding impacts on their environmental integrity. Designation as a National Conservation Area is to some degree a means of transferring impact.

- Recreation vehicle use will be excluded in Zones 2 and 4 and the southern portion of Zone 3.
- To implement the Management Program, it is necessary to identify primary uses on specific areas and compromise the full production capacity of resource uses. The exclusion of timber harvest in Zones 2 and 4 will unavoidably have an adverse impact upon income and employment, since this timber resource is removed from the Area's production base. Timber harvest will be temporarily deferred, for 5 years in Zone 7. These restrictions and those needed for establishment of streamside buffer strips result in a decrease in the allowable cut in the area from a potential 8.8 million board feet to 2.4 million board feet on national resource lands and private lands (1.9 million board feet, if national resource lands only are considered).
- Mineral extraction will be limited severely. In the KRNCA, mining activities will be restricted. In the context of overall mineral supply, mining restrictions in the Area will have a relatively minor impact. There is no extraction of minerals from the Area at present. Extraction of minerals from the only known deposits, the Queen Peak Mine, is compatible with the Management Program. Future exploration and development of presently unknown deposits would be limited.

Logging and road construction needed for sustained yield production of timber and to provide recreation access will cause some unavoidable adverse impacts in Zone 6 and 7.

Some soil erosion will occur, even with careful planning layout, design, and construction, resulting in a temporary increase in sedimentation.

The mandate for public use of a National Conservation Area requires developments to permit appropriate public use, causing unavoidable adverse impacts on natural systems. Zoning for primary use limits both the manager and the public in their uses of the Area and the location of developments and facilities, designed to accommodate use. Extensive areas have been zoned to exclude developments and intensive uses. Such zoning is essential to protection of the Area's scenic qualities and natural resourcs such as wildlife, vegetation,and archaeological values. Those who would prefer more intensive use of the Area will be adversely and unavoidably affected.

Designation of King Range as a National Conservation Area will give rise to unavoidable impacts. Designation is an effective advertisement which will swell visitation to the Area. Although this increase in visitor use is an economic asset, additional visitation will have an adverse effect on the presently tranquil aura of the region, and - despite attempts at mitigation - on the environment.

Wildlife species, both terrestrial and marine, dependent upon habitat along the coastal margin will be unavoidably impacted. The present mood of isolation will be reduced.

VI. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Short-term uses that would occur under the proposed Management Program are intended to maintain indefinitely the sustained yield productivity of the KRNCA and the quality of its natural resources. Maintenance of natural populations and the integrity of natural processes over the long-term is a major objective of the proposed management of the Area. Likewise, the Management Program's intent is to provide those uses of the Area, which can take place without progressive deterioration of natural resources.

The proposed action, by recognizing multiple use through designated primary use zones, limits exploitation of natural resources on a short-term basis, but provides assurance of their continued availability for future generations.

The Management Program is predicated upon the premise that land located within the various primary use zones will either be acquired by the Federal Government or be managed by private individuals in such a way as to be compatible with the primary use in the zone. The natural resources of the Area will then be managed on the basis of maintaining long-term productivity.

Management of timber resources provides a good example of the effect of the Management Program in maintaining long-term productivity. Private landowners of small tracts will normally manage their properties to maximize timber production at times when prices are high and minimize reinvestment in practices, such as reforestation, which do little to increase short-term profitability. When these lands are included in a program weighted toward maintenance of long-term productivity, the entire productive capacity of the area is managed for sustained yield and there is much less fluctuation to reflect short-term changes in product markets. There is greater reinvestment in reforestation, and other intensive forestry practices, because the area's management objectives reflect a longer time horizon. Thus, while short-term use production will be reduced, the objective of maintaining long-term productivity and a stable flow of material to dependent industries is enhanced.

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Implementation of the Management Program commits land and resources to uses according to primary use zones, but this commitment is tentative rather than irreversible. The King Range Act provides that the plan will be reviewed and reevaluated periodically. Therefore, the Management Program is not a fixed, final commitment of resources, but rather a working plan that must be reviewed and changed as warranted by changing needs and conditions. The attached King Range Management Program document includes a more detailed discussion of the mechanisms established for change and modification.

The expendidure of funds to implement some features of the plan represents an irretrievable commitment of resources. These features include recreation facility development, wildlife and fisheries habitat improvement and watershed stabilization practices on chaparral sites. Other expenditures, such as reforestation, represent capital investments in the area and will be captured at the time the increased timber is marketed.

The projected increase in visitation may, despite mitigation built into the Management Program, result in destruction of archeological sites, particularly those sites that are presently unknown.

Increased visitor use may increase the potential for actual destruction of threatened wildlife species or disruption of their life cycles. Three threatened species - the southern bald eagle, peregrine falcon and the brown pelican are found in the area.

VIII. ALTERNATIVES TO THE PROPOSED ACTION

A number of alternative courses of action have been considered concerning the future of the King Range. Generally, these alternatives fall into three categories: (A) no action, (B) alternative land management philosophies, and (C) alternative levels of implementation of the proposed Management Program.

A. No Action

One alternative is to take no action on any of the elements of the proposed Management Program. The KRNCA would not be designated, nor would the elements of the proposed plan and program be implemented. Since this alternative would not meet the Congressional mandate of P.L. 91-476, it would require legislative action.

Development of the Shelter Cove subdivision would continue. The current rate of construction is about five homes annually, but the developer predicts that construction starts will increase to 60-80 per year. This will result in increased soil erosion, increased need for community services and increased use of the remainder of the area by humans.

Subdivision of other private lands is probable. Landowners have been approached in the past by developers and some lands would probably be ripe for subdivision if economic conditions were favorable. Subdivision entails a considerable amount of road construction and site leveling. These actions cause loss of soil, increases in stream sedimentation, decrease in moisture retention capacity, destruction of vegetation and consequently a reduction in wildlife habitat.

Mineral development is not anticipated unless supply shortages develop that would lead to a resumption of the manganese stockpiling program.

Logging of timber on private lands would probably continue, as regulated by the California Forest Practices Act. Inventories reveal that over 99 MMBF of timber would be available for harvest on almost 17,000 acres of private land within the KRNCA boundaries.

Livestock grazing would continue, primarily along the coast in the northwestern portion of the KRNCA. Over 3,000 AUM's of forage could be utilized.

Watershed conditions should continue to be stable on approximately one-half the Area. On the remaining half continued erosion can be anticipated. If increased road construction, logging, grazing, and site leveling occur as is projected above, large scale increases in erosion are probable.

Blacktailed deer habitat will continue to decline as vegetation proceeds to develop toward climax. As this occurs, populations can also be expected to decline.

Increased logging and road construction will increase stream sediment loading and decrease available salmonid spawning and rearing habitat.

Recreation use will increase at an annual rate of approximately five percent. This could result in increased wildfire risk, possible sanitation problems, and probable conflict between recreation vehicle users and recreationists desiring a primitive experience. There will be no increase in recreation facilities and the increased recreation use will be essentially unmanaged.

Federal lands within the Area will receive nearly the same intensity of resource utilization and protection as in the proposed action. However, private lands would primarily remain in private ownership and the short-term use would be much more intense. The cumulative effect of vegetative change through timber harvest, burning and road construction will disrupt many wildlife species. Especially vulnerable are those species that cannot tolerate close relationship to man, such as eagles and bears. Archeological sites will be excavated and many historic items could be destroyed.

B. Alternative Land Management Philosophies

The proposed Management Program is directed toward achievement of multiple use and sustained yield objectives, in accordance with legislative direction in P.L. 91-476.

An almost infinite variety of other alternative resource mixes is possible. The two discussed below set the outer limits for consideration of possible alternative combinations of resource uses. Since it is debatable whether either alternative fully meets the intent of P.L. 91-476, legislative action would probably be needed prior to adoption of either alternative.

1. Full Preservation of Environmental Quality

This alternative entails very limited utilization of the Area's resources. Acquisition of private lands would proceed as rapidly as possible. Timber harvest would essentially be excluded. Grazing would be reduced to a level much below current use. Wildlife habitat improvement projects and stream clearance would be limited to those areas where physical access is presently available. No new recreational facilities would be developed, except possibly some primitive hiker-oriented facilities along trails and beaches. Off-road vehicle use would not be allowed. Mineral exploration would be discouraged. No new road construction would be allowed and many of the existing roads and four-wheel drive trails would be closed and revegetated.

Impacts: To preserve environmental quality, the Bureau would designate the entire area with recreation as the primary use. The utilization of all other resources would necessarily be very minimal since one of the recognized values of the Area is its remote, back country character. Development of any type could detract from this primary recreation value. No additional roads would be built; several in existence would be closed and revegetated. Vehicles would not be allowed off roads or along beaches. Existing campgrounds would be left as currently developed, trails would be kept nearly as they now exist. Timber harvest would not be allowed since cutover areas do detract from aesthetics on a short-term basis. Grazing would be greatly curtailed. No projects would be allowed to convert brush to grass for improving grazing, wildlife habitat or watershed. Revegetation would be initiated on all cutover or cleared areas.

All actions would be directed toward mitigating the current environmental disruptions on both the present private ownerships and national resource lands. Ecological relationships and human interest values, such as archeological and historic sites, would receive maximum protection.

Economic effects and impacts upon the Area's infrastructure would be greater, at least in the short-term, than any other alternative. While the loss cannot be quantified, some decrease in employment would be probable. The adverse impacts on local employment and the economy could be significant if the resources were not utilized.

2. Maximum Utilization of Resources

This alternative is based upon short-term maximization of resource use. In some cases, long-term ecosystem productivity would be lessened. Timber would be harvested on all timber producing sites. At least 25,000 acres have a potential for intensive timber management, including extensive clearcutting, vegetative conversion, reforestation, fertilization, and construction of a high standard road system. Grazing use would be increased by converting brush sites to grass and development of extensive cross-fencing. Several additional campgrounds would be developed with surfaced access roads and parking facilities. Off-road vehicle areas would be developed along ridge trails as well as portions of the beaches. Streams would be cleared of log jams and road access would be provided for fishermen. Type conversion for improvement of wildlife habitat and development of a high-density network of access roads and four-wheel drive trails would improve hunter success. Mineral exploration would be encouraged in all areas.

Impact: Timber harvest maximization on 25,000 acres would have some significant impacts on the environment. Many areas included in this acreage are extremely steep (over 80% slope) and have relatively shallow soils which are highly erodible. Also many of the areas are clearly visible from roads, trails and beaches. Some virgin stands harbor spotted owls and other animals that would be displaced or killed if the timber is harvested. Intensive forest management would require at least 20 miles of additional road construction plus improvement of 30-40 miles of existing road in various stages if disrepair.

Conversion of brush to grass to improve grazing and increase water yield would disrupt the habitat of many animals, cause large openings that would extend beyond the reach of animals requiring edge effect and leave large areas (several 100 acres) of solid, unbroken grass fields. Fences would be aesthetically displeasing, contrasting with the natural appearance of the Area.

Campgrounds with large surfaced parking lots, trailer turn-arounds and sewage disposal facilities would require removal of much vegetation, thus taking away much of the natural beauty around the now primitive campgrounds.

Off-road vehicles utilizing the old logging roads, trails and many grassy slopes could cause noise pollution, air pollution, accelerated soil erosion and hazards to hikers. Wildlife, such as eagles and ospreys, would be harassed to the point of abandoning the Area.

Stream clearing and wildlife habitat projects will cause increased sediment in streams for a short period, but should not have extended effects, except for visual changes.

Mineral exploration will require additional excavation, construction of roads, will increase stream sediment loads, and have an additional impact on aesthetic quality.

C. Alternative Levels of Implementation of the Proposed Management Program

In addition to the no action alternative, and alternatives directed at differing mixes of resource objectives, there are numerous alternatives which are directed at different levels of implementation of the proposed Management Program. Two alternative levels of implementation were explicitly considered: (1) assuming a $1 million budget, and (2) assuming a budget level of $3 million.

1. Implementation - Assuming a Budget Level of $1,000,000

This alternative would implement P.L. 91-476 with the same boundaries, zone designation, and land acquisition program as the proposed action. It differs from the proposed action in that it would involve no resource protection or development projects, no recreation or other nontimber sale road construction, and no permanent visitor contact site construction. It would provide for harvest of 1.6 million board feet of timber per year. The full fire protection program would be carried out.

Impacts: Visitor use would increase at about one-half the rate anticipated under the proposed Management Program, or about 10 percent annually. There would be continually increasing congestion and litter accumulation, particularly on those beaches that are accessible to vehicles in the northern part of the Area. Disturbance of wildlife would occur. No visitor management program would be initiated, but the fire protection program would result in improved communications for search and rescue operations.

Timber harvest and the related timber sale road construction would increase erosion in the affected areas and increased stream sedimentation would occur, primarily because of the lower construction standards applied in construction of single-purpose roads and the lack of subsequent road maintenance. No reforestation of cutover lands would occur.

Watershed problems would continue untreated and unabated since this alternative does not provide funding for watershed stabilization. Stream blockages would remain, since stream clearing would also be impossible.

Surveys of archeological and historical resource values would not be made, resulting in an increased potential for destruction of these values over time.

2. Implementation - Assuming a Budget Level of $3,000,000

This alternative would implement P.L. 91-476 with the same boundaries, zone designation, and land acquisition program as the proposed action. It differs from the proposed action in that it includes approximately one-half as much road construction and watershed protection activity. No permanent visitor contact facility would be built. Parking facilities would be built at Point Delgada and the mouth of the Mattole River. Sanitary facilities would be provided at Black Sand Beach. Timber harvest would be 1.6 MMBF per year, but very little planting of unstocked forest land would be done. The full fire protection program would be implemented, but fewer patrols would be provided for visitor safety. No additional projects or nontimber road construction would be carried out after the first five years.

Impacts: As in the preceding alternative, the projected rate of increase in recreation use would be about one-half of the rate predicted for the proposed program. Since only limited recreational developments would be constructed and there would be no visitor management program, implementation of this alternative would have significant adverse effects upon water quality, cultural values, wildlife and its habitat, and recreation values.

Less road construction would take place under this alternative, so sedimentation resulting from construction activities would be less than in the case of the proposed action.

No actions, such as conversion of brushland to timberland, or stream clearance projects, would be accomplished under this alternative. Production of timber and livestock forage would, therefore, remain considerably below potential. Approximately one-half of the potential spawning and rearing habitat would be inaccessible to anadromous fish and present wildlife habitat problems would continue.

IX. CONSULTATION AND COORDINATION WITH OTHERS

A. Consultation and Coordination in the Development of the Proposal and in the Preparation of the Draft Environmental Statement

Numerous agencies, groups, and individuals were involved in the development of the proposed Management Program and the draft environmental statement. Before planning was initiated, two advisory committees were established. One committee was composed of members of local communities which represented a number of varying interests. The other committee included representatives of federal and state public agencies and local governments. A total of eight meetings were held with these committees during various stages of plan development. In addition, the Bureau maintained close coordination with other state and local regulatory or planning agencies not represented on the committees.

Five public meetings were held in the local area in April and May of 1973, during the early plan formulation phase of the general plan. At these meetings, initial Bureau management recommendations were presented and comments and recommendations were solicited from the general public. Additional public meetings were held in the local area in October of 1973 to present the final planning recommendations for management and to receive any additional comments.

After development of the detailed implementation program for the general land use plan, a summary report and an environmental assessment were distributed to governmental agencies and the public during March 1974. A final review meeting was held for Federal and State agencies in Sacramento on April 4, 1974. A public hearing was then held on April 6, 1974, near the King Range area in Redway, California. The plan was presented and, after a question and answer session, written and oral testimony was solicited.

During April 1974 the Management Program and the Environmental Assessment were distributed to the Office of the Secretary of the Interior and other Interior agencies.

B. Coordination in the Review of the Draft Environmental Statement

This draft environmental impact statement has been sent to the following for review and comment.

Federal Agencies

Department of Agriculture
    Forest Service
    Soil Conservation Service

Department of the Army
    Corps of Engineers

Department of Commerce
    National Oceanic and Atmospheric Administration

Environmental Protection Agency

Department of the Interior
    Fish and Wildlife Service
    Bureau of Mines
    Bureau of Outdoor Recreation
    Bureau of Reclamation
    Geological Survey
    National Park Service

State Agencies

Office of Planning and Research, Office of the Governor
(State Clearinghouse)
Coastal Zone Conservation Commission

Regional and Local

North Coast Region, Water Quality Control Board
Humboldt County Air Pollution Control District
Mendocino County Air Pollution Control District
North Coast Regional Coastal Zone Conservation Commission
Humboldt Bay Harbor, Recreation and Conservation District
Humboldt Resort District No. 1
Mendocino County Board of Supervisors
Humboldt County Board of Supervisors

Organizations and Individuals

Far West Motorcycle Club
Mendocino County Four-Wheel Drive Patrol
Western Rockhound Association, Inc.
California Association of Four-Wheel Drive Clubs, Inc.
Redwood Empire Four-Wheel Drive Club

Redwood Region Audubon Society
Humboldt Wildlife Conservation Club
Redwood Chapter, Sierra Club
Redwood Buggy Association
Boot and Blister Club
Dr. Ed Schwartzman
Mr. Steven P. Steinhour
Mr. Leonard Blomquist
Dr. David P. Stevenson
Mr. Kay Roscoe
Mr. Robert McKee
Dr. Donald W. Hedrick
Mr. William Brown
Mr. Mal Coombs
Dr. William Devall

APPENDIX A

VASCULAR PLANTS OF THE KING RANGE NATIONAL CONSERVATION AREA

Ferns

Scientific Name (Munz and Abrams)	Common Name
Adiantium jordani	Calif. maidenhair fern
Adiantum pedatum aleuticum	West. maidenhair fern
Athyrium Filix-termina var. sitchense	lady fern
Blechnum spicant	deer fern
Dryopteris arguta	wood fern
Pityrogramma triangularis	gold back fern
Polypodium glychrrhize	licorice fern
Polystichum munitum	sword fern
Pteridium aquilinum	bracken fern
Woodwardia fimbriata var. chamissoi	giant chain fern

Grasses

Scientific Name (Munz and Abrams)	Common Name
Aira caryophylla	hairgrass
Avena Fatua	wild oats
Bromus carinatus	Calif. brome
Bromus laevipes	woodland brome
Bromus mollis	Blando brome
Bromus rigidus	ripgut
Cynosurus echinatus	dogtail
Danthonia californica	Calif. oat grass
Deschampsia caespitosa	tufted hairgrass
Elymus californica	California fescue
Elymus caput-medusae	medusa head
Elymus glaucus	Western rye-grass
Festuca dertonensis	fescue
Festuca megalura	six weeks fescue
Festuca octoflora	slender fescue
Festuca pacifica	Pacific fescue
Keoleria cristata	June grass
Loluim perenne	perennial rye
Poa pachypholis	seacliff bluegrass

Forbs

Scientific Name (Munz and Abrams)	Common Name
Abronia latifolia	sand verbena or yellow abronia
Achillea borealis californica	yarrow
Achyls triphylla	deerfoot vanilla leaf
Agoseris apargioides	agoseris
Amsinckia spectablis	fiddleneck
Anaphalis margaritacea	pearly everlasting
Anemone deltoidea	Western windflower
Angelica Hendersonii	sea-bluff angelica
Apocynum androsaemifolium	spreading dogbone
Apocynum pumilum	mountain dogbone
Aquilegia eximia	columbine
Aquilegia formosa truncata	Northwest crimson columbine
Aralia californica	spikenard
Aster chilensis	common Calif. aster
Boykinia (therofan) elata	slender boykinia
Brassica campestris	field-mustard
Brodiaea coronaria	harvester cluster lily
Brodiaea laxa	tall brodiaea
Brodiaea tessestric	dwarf brodiaea
Cakile eduntule californica	sinuated-leaved sea rocket
Cakile maritime	sea rocket
Cannabis sativa	marijuana (hemp)
Castilleja Wightii Littoralis	yellow paint brush
Centaurea melitensis	yellow star thistle
Chamaphila umbellata var. occidentalis	Leatherly leaved pipsissewa
Chrysanthemum leucanthemum	oxeye daisy
Cirsium vulgare	bull thistle
Clarkia amoena	farewell-to-spring
Clintonia unifloria	single flowered clintonia (Queens Cup)
Convolvulus occidentalia	hillside morning glory
Convolvulus soldanella	beach morning glory
Corethrogyne californica var. lyonii	California corethrogyne
Cornus canadensis	bunch-berry annual dogwood
cotula coronopifolia	brass buttons
Cynoglossum grande	blue flowered hound's tongue
Cynoglossum occidentate	" " "
Delphinium trolliifolium	blue larkspur
Dentaria californica var. cariophylla	mildmaids

Forbs (cont.)

Scientific Name (Munz and Abrams)	Common Name
Dicentra formosa	bleeding hearts
Digilitis purpurea	foxglove
Disporum Smithii	lily, fairy bells
Dudleya cymosa	spreading dudleya
Dudleya farinosa	white dudleya
Eremocarpus setigerus	turkey mullen
Epilobium califoricum	willow herb
Equisetum Telmateria var. Braunii	scouring-rush
Erechtites prenanthoides	toothed coast fireweed
Erigeron glaucus	seaside daisy
Erodium cicutarium	storksbill
Erysimum menziesii	wallflower
Erysimum suffrutescens	wallflower
Erysimum concinnum	coast wallflower
Eschscholzia californica	Calif. poppy
Euphorbia lathyris	gopher plant
Fragaria californica	wood strawberry
Fragaria chiloensis	beach strawberry
Franseria chamissonis var. bipinnatisecta	silver beach-week
Franseria chamossonis	beach burr
Fritillaria lanceolata	mission bells
Galium bolanderi	bedstraw
Geranium molle	Dove's foot geranium
Gilia capitata	blue field gilia
Godetia amoena	Farewell-to-spring
Grindelia stricta venulosa	Pacific gum grindelia
Habenaria elegans var. maritima	piperia, rain orchid
Helenium bolanderi	sneezeweed
Heracleum lanatum	cow parsnip
Heuchera michrartha var. pacifica	alum root
Hypericum scouleri	St. John's Wort - Klamath Weed
Hypochoeris radicata	false dandelion
Iris chrysophylla	slender tubed iris
Iris Douglasiana	Douglas iris
Lathyrus littotalis	silvery-leaves beach pea
Lotus	lotus
Lupinus albifrons	bush silver lupine
Lupinus rivularis	riverbank lupine
Marah fabeceus	wild cucumber

Forbs (Cont.)

Scientific Name (Munz and Abrams)	Common Name
Medicago hispida	burr clover
Medicago hispida var. confinis	Hookless-burr clover
Mesembryanthemum edule	Hotten fig
Mimulus dentatus	monkey flower
Mimulus guttatus	yellow mimulus
Mimulus guttatus subsp. litoralis	monkey flower
Montia cordifolia	cordate-leaved montia
Montia perfoliata	miner's lettuce
Nemophila menziesii var. atamaria	baby blue eyes
Oenothera cheiranthifolia	beach evening primrose
Oenothera hookerii	Hookers evening primrose
Orthocarpus pusillus	dwarf owl's clover
Osmorhiz adepauperata	sweet arrow cicely
Oxalis oregana	redwood sorrel
Pedicularis densiflora	Indian warrior
Petasites palmatus	sweet coltsfoot
Phacelia blolanderi	Bolander's phacelia
Plantago hirtella	Mexican plantain
Plantago juncoides	Pacific seaside plantain
Plantago major	boradleaf plantain
Polypodium californicum	California polypodium
Polygonum paronychia	beach knotweed
Pyrola bracteata	large wintergreen
Pyrola picta	white veined evergreen
Prunella vulgaris	selfheal
Ranuculus californicus	buttercup
Raphanus sativus	wild radish
Rorippa nasturtium aquaticum	water-cress
Rumen acetosella	dock
Rumex crispus	curly dock
Rumex maritinea	seaside dock
Sanicula arctopoides	footsteps of spring
Satureja Douglasii (Micromaria Chamissonis)	yerba buena
Saxifraga mertensiana	wood saxifrage
Scoliopus Bigelovii	fetid adder's tongue (slink pod)
Schrophularia californica	bee plant
Sedum spathulifolium	Pacific stone-crop
Silene californica	Indian pink
Silybum marianum	milk thistle

Forbs (Cont.)

Scientific Name (Munz and Abrams)	Common Name
Smilacina racemosa var. amplexicauliss	slim Solomon
Smilacine stellata var. sessilifolia	fat Solomon
Solanum umbelliferum	nightshade
Spergularia macrotheca	large-flowered sand spurrey
Stachys rigida	hedge nettle
Tellima grandiflora	fringe cups
Trientalis latifolia	starflower
Trillium ovatum	Western wake-robin
Urtica Holoserecia	hoary nettle
Vancouveria planipetala	inside-out flower
Verbascum thapsis	common mullein
Vicia gigantea	giant vetch
Viola adunca	Western dog violet
Viola ocellata	two-eyed violet
Whipplea modesta	yerba de selva (modesty)
Xerophyllum tenax	beargrass
Zauschneria septentrionalis	Northern California fushia

Shrub

Scientific Name (Munz and Abrams)	Common Name
Arctostaphylos Chusingiana	cushing manzanita
Arctostaphylos columbiana x glandulosa	eastwood manzanita
Arctostaphylos manzanita	common manzanita
Artemisis Douglasiana	wormwood
Baccharis consanguinea	coyote brush
Berberis nervosa	redwood mahonia
Berberis pinnata	California mahonia
Castanopsis semperverens	bush chinquapin
Ceanothus foliosus	wavyleaf ceanothus
Ceanothus incanus	whitethorn
Ceanothus sorediatus	jim brush
Ceanothus thyrsiflorus	coast blue-blossom
Ceanothus velutinus var. laevigatus	varnishleaf ceanothus
Cercis occidentalis	western red bud
Corylus cornuta x californica	hazelnut

Shrub (Cont.)

Scientific Name (Munz and Abrams)	Common Name
Cytisis scoparius	scotchbroom
Eriodictyon californica	yerba santa
Eriogonum latifolium	coast buckwheat
Eriophyllum lanatum	golden yarrow
Eriophyllum lanatum achillaeoides	seaside woolly sunflower
Eriophyllum stanchaedifolium var. artemisaefolium	lizard tail
Garrya elliptica	coast silktassel
Garrya fremontii	Fremont silktassel
Gaultheria shallon	red-green salal
Haplopappus arborescens	golden fleece
Heteromeles arbutifolia	toyon
Holodiscus discolor	ocenan spray
Lonicera ledebourii	coast twinberry
Lanicera hispidula vacillans	coast honeysuckle
Lupinus arboreus	yellow bush lupine
Lupinus arboreus	blue bush lupine
Mimulus aurantiacus	bush sticky monkey flower
Monardella odoratissima	Mtn. monardella
Philadelphus Lewisii Gordonainus	mock orange
Physocarpus capitatus	minebark
Rhus diversiloba	poison oak
Ribes divaricatum	straggly gooseberry
Ribes glutinosum	pink flowering current
Ribes Roezlii var. cruentum	spiny-fruited gooseberry
Rosa gymnocarpa	wood-rose
Rubus laciniatus	evergreen blackberry
Rubus leucodermis	black raspberry
Rubus parviflorus	thimbleberry
Rubus procerus	Himalaya blackberry
Rubus spectabilis	salmonberry
Rubus ursinus	wild blackberry
Sambucus caerulea	blue elderberry
Sambucus callicarpa	red elderberry
Salanum	shrubby nightshade
Symphoricarpos rivularis	snowberry
Vaccinium ovatum	coast huckleberry
Whipplea modesta	Yerba de Salva

Trees

Scientific Name (Munz and Abrams)	Common Name
Abies grandis	grand fir
Acer macrophyllum	big-leaf maple
Aesculus californica	Calif. buckeye
Alnus oregona	red alder
Alnus rhombifolia	white alder
Amerlanchier florida	Pac. serviceberry
Arbutus Menziesii	madrone
Castanopsis chrysophylla	golden chinquapins
Castanopsis chrysophylla var. minor	single shafted chinquapins
Cornus nuttalii	Pac. dogwood
Corylus cornuts var. californica	hazelnut
Heteromeles arbutifolia	Calif. toyon
Lithocarpus densiflora	tanoak
Myrica californica	coast waxmyrtle
Osmoronia cerasiformia	Oso berry, bird cherry, skunk bush
Pinus lambertiana	sugar pine
Populus trichocarpa	beach cottonwood
Pseudotsuga Menziesii	Douglas-fir
Quercus chrysolepis	canyon live oak
Quercus Garryana	garry oak
Quercus kelloggii	black kellogg oak
Rhamnus californica	Calif. coffeeberry
Salix coulteri	couter willow
Salix laevigata	red willow
Salix lasiolepsis	arroyo willow
Salix sitchensis	Sitka willow
Salix tracyi	tracy willow
Sequoia sempivirens	coast redwood
Taxus brevifolia	western yew
Umbellularia californica	Calif. laurel

APPENDIX B

ANIMALS OF THE KING RANGE NATIONAL CONSERVATION AREA

(Based on the Ukiah District-wide Inventory Listing-
Humboldt and Mendocino Counties)

Amphibians

Species
Common and Scientific Names

Pacific Giant Salamander
Dicamptodon ensatus

Northern rough-skinned newt
Taricha granulosa

Ensatina
Ensatina eschscholtzi

Cal. slender salamander
Batrachoseps attenuatus

Speckled black salamander
Aneides flavipunctatus

Clouded salamander
Aneides ferreus

Aboreal salamander
Aneides lugubris

Brown N.W. salamander
Ambystoma gracile

Southern olympic salamander
Rhyacotriton olympicus

Western toad
Bufa boreas

Pacific tree frog
Hyla regilla

Red-legged frog
Rana aurora

Amphibians cont.

Species
Common and Scientific Names

Foothill yellow-legged frog
Rana boylei

Bull frog
Rana catesbeiana

Tailed frog
Ascaphus truei

Reptiles

Species
Common and Scientific Names

Pacific mud turtle
(Western pond turtle)
Clemmys marmorata

Northwestern fence lizard
Sceloporus occidentalis

Western skink
Eumeces skiltonianus

Southern alligator lizard
Gerthonotus multicarinatus

Northern alligator lizard
Gerrhonotus coenuleus

Northern sagebrush lizard
Sceloporus graciosus

Reptiles cont.

Species
Common and Scientific Names

Sharp-tailed snake
Contia tenuis

Western yellow-bellied racer
Coluber constrictor

Common king snake
Lampropeltis getulus

Common gartersnake
Thamnophis sirtalis

Western rattlesnake
Cortalus viridis

Rubber boa
Charina bottae

N.W. ringneck snake
Diadophis punctatus

Pacific gopher snake
Pituophis melanolencus

Western terr. gartersnake
Thamnophis elegans

Western aquatic gartersnake
Thamnophis couchi

Fish (Anadromous)

Species
Common and Scientific Names

King Salmon
Onchorhynchus tshawytscha

Steelhead
Salmo gairdneri

Silver Salmon
Onchorhynchus kisutch

Fish Resident)

Species
Common and Scientific Names

Sculpin
Scorpaena guttata

Rainbow trout
Salmo gairdneri

Fish (Marine)

Species
Common and Scientific Names

Albacore
Thunnus germo

Bocaccio
Sebastodes paucispinis

Blue rockfish
Sebastodes mystinus

Blennies
Fam. Blenniidae

Cabezon
Scorpaenichthys Spp.

Cottids
Fam. Cottidae

Grass rockfish
Sebastodes rastrellinger

Greenliny sea trout
Hexagrammos decagrammos

Ling Cod
Ophiodon elongatus

Rockfish
Sebastodes flauidus

Surf perch
Amphistichus rhodoterus

Fish (Marino) cont.

Species
Common and Scientific Names

Whitebait
Hisponesus pretiosus

Mammals

Species
Common and Scientific Names

Opposum
Didelphis marsupialis

Towbridge shrew
Sorex trowbridgei

Vagrant shrew
Sorex vagrans

Pacific shrew
Sorex pacificus

Shrew-mole
Neurotrichus gibbsi

Pacific mole
Scapanus orarius

California mole (Broad-handed)
Scapanus latimanus

Little brown myotis
Myotis lucifugus

Yuma myotis
Myotis yumanensis

Long-eared myotis
Myotis evotis

Fringed myotis
Myotis thysanodes

Long-legged myotis
Myotis volans

Mammals cont.

Species
Common and Scientific Names

California Myotis
Myotis californicus

Silver-haired bat
Lasionycteris noctivagans

Big Brown Bat
Eptesicus fuscus

Red bat
Lasiurus borealis

Hoary bat
Lasiuius cinereus

Western big-eared bat
Plecotus townsendi

Pallid bat
Antrozous pallidus

Mexican freetail bat
Tadarida brasilensis

Black bear
Ursus americanus

Raccoon
Procyon lotor

Ringtail
Bassariscus astutus

Marten
Martes pennanti

Shorttail weasel
Mustela erminea

Longtail weasel
Mustela frenata

Mink
Mustela vison

Mammals cont.

Species
Common and Scientific Names

River otter
Lutra canadensis

Badger
Taxidea taxus

Spotted skunk
Spilogale putorius

Striped skunk
Mephitis mephitis

Coyote
Canis latrans

Gray fox
Urocyon cinereoargenteus

Mountain lion
Felis concolor

Bobcat
Lynx rufus

California ground squirrel
Citellus beecheyi

Townsend chipmunk
Eutamias townsendi

Western gray squirrel
Sciurus griseus

Chickaree
Tamiasciurus douglasi

Northern flying squirrel
Glaucomys sabrinus

Valley pocket gopher
Thomomys bottae

Mammals cont.

Species
Common and Scientific Names

Beaver
Castor canadensis

Western harvest mouse
Reithrodontomys megalotis

Deer mouse
Peromyscus maniculatus

Dusky-footed woodrat
Neotoma fuscipes

Red tree mouse
Phenaromys longicaudus

Calif. redback vole
Clethrionomys occidentalis

California vole
Microtus californicus

Townsend vole
Microtus townsendi

Oregon vole
Microtus oregoni

House mouse
Musa musculus

Pacific jumping mouse
Zapus trinotatus

Porcupine
Erethizon dorsatum

Blacktail jack rabbit
Lepus californicus

Brush rabbit
Sylvilagus bachmani

Mammals cont.

Species
Common and Scientific Names

Pinon mouse
Peromyscus truei

Longtail vole
Microtus longicaudus

Roosevelt elk - Prairie Creek
Cervus canadensis roosevelti

Black-tailed deer
Odocoileus hemionus columbianus

Northern sea lion (Steller)
Eumetopias jubata

California sea lion
Zalophus californianus

Harbor seal
Phoca vitulina

Long snout dolphin
Stenella stys

Right whale dolphin
Lissodelphis borealis

Pacific white-sided dolphin
Lagenorhynchus obliquidens

Pacific killer whale
Orcus rectipinna

Grampus
Grampus griseus

False Killer
Pseudorca crassidens

Pacific blackfish
Globicephala scammoni

Pacific harbor porpoise
Phocoena vomerina

Mammals cont.

Species
Common and Scientific Names

Dall porpoise
Phocoenoides dalli

Gray whale
Eschrichtius glaucus

Finback whale
Balaenoptera physalus

Rorqual
Balaenoptera borealis

Piked whale
Balaenoptera acutorostrata

Humpback whale
Megaptera novaengliae

Pacific right whale
Eubalaena sieboldi

Birds

Species
Common and Scientific Names

Common Loon
Gavia immer

Artic Loon
Gavia arctica

Red-throated loon
Gavia stellata

Red-necked grebe
Podiceps grisegena

Eared grebe
Podiceps caspicus

Western grebe
Aechmophorus occidentalis

Birds cont.

Species
Common and Scientific Names

Horned grebe
Podiceps auritus

Pied-billed grebe
Podilymbus podiceps

Sooty shearwater
Puffinus griseus

Slender-billed shearwater
Puffinus tenuirostris

Brown pelican
Pelecanus occidentalis

Double-crested cormorant
Phalacrocerax auritus

Brandt's cormorant
Phalacrocorax penicillatus

Pelagic cormorant
Phalacrocorax pelagicus

Great Blue Heron
Ardea herodias

Green heron
Butorides virescens

Common egret
Casmerodius albus

Snowy egret
Leucophoyx thula

Black-crowned night heron
Nycticorax nycticorax

American Bittern
Botaurus Lentifinosus

Whistling swan
Olor columbianus

Birds cont.

Species
Common and Scientific Names

Canada goose
Branta canadensis

Black brant
Branta nigricans

Mallard
Anas platyrhynchos

Cadwall
Anas strepera .

Pintail
Anas acuta

Green-winged teal
Anas carolinensis

Blue-winged teal
Anas discors

Cinnamon teal
Anas cyanoptera

American widgeon
Mareca americana

Shoveler
Spatula clypeata

Wood Duck
Aix sponsa

Redhead
Aythya americana

Ring-necked duck
Aythya collaris

Canvasback
Aythya

Greater scaup
Aythya marila

Birds cont.

Species
Common and Scientific Names

Lesser scaup
Aythya affinis

Common Goldeneye
Bucephala clangula

Barrow's goldeneye
Bucephala islandica

Bufflehead
Bucephala albeola

Oldsquaw
Clangula hyemalis

White-winged scoter
Melanitta deglandi

Surf scoter
Melanitta perspicillata

Common scoter
Oidemia nigra

Ruddy duck
Oxyura jamaicensis

Common merganser
Mergus merganser

Red-breasted merganser
Mergus serrator

Turkey vulture
Cathartes aura

White-tailed kite
Elanus Leucurus

Goshawk
Accipiter gentilis

Sharp-shinned hawk
Accipiter striatus

Birds cont.

Species
Common and Scientific Names

Cooper's hawk
Accipiter cooperii

Red-tailed hawk
Buteo jamaicensis

Red-shouldered hawk
Buteo lineatus

Rough-legged hawk
Buteo lagopus

Ferruginous hawk
Buteo regalis

Golden eagle
Aquila chrysaetos

Bald eagle
Haliaeetus leucocephalus

Marsh hawk
Circus cyaneus

Osprey
Pandion haliaetus

Prairie falcon
Falco mexicanus

Peregrine falcon
Falco peregrinus

Pigeon hawk (Merlin)
Falco columbarius

Sparrow hawk
Falco sparverius

Blue grouse
Dendragapus obscurus

Ruffed grouse
Bonasa umbellus

Birds cont.

Species
Common and Scientific Names

California quail
Lophortyx californicus

Mountain quail
Oreortyx pictus

Virginia rail
Rallus limicola

Sora
Porzana carolina

American coot
Fulica americana

Semipalmated plover
Charadrius semipalmatus

Killdeer
Charadrius vociferus

American golden plover
Pluvialis dominica

Black-bellied plover
Squatarola squatarola

Surfbird
Aphriza virgata

Ruddy turnstone
Arenaria interpres

Black turnstone
Arenaria melanocephala

Common snipe
Capella gallinago

Long-billed curlew
Numenius americanus

Whimbrel
Numenius phaeopus

Birds cont.

Species
Common and Scientific Names

Spotted sandpiper
Actitis macularia

Willet
Catoptrophorus semipalmatus

Greater yellowlegs
Totanus melanoleucus

Knot
Calidris canutus

Rock sandpiper
Erolia ptilocnemis

Pectoral sandpiper
Erolia melanotos

Baird's sandpiper
Erolia bairdii

Least sandpiper
Erolia minutilla

Dunlin
Erolia alpina

Short-billed dowitcher
Limnodromus griseus

Long-billed dowitcher
Limnodromus scolopaceus

Western sandpiper
Ereunetes mauri

Marbled godwit
Limosa fedoa

Sanderling
Crocethia alba

American avocet
Recurvirostra americana

Birds cont.

Species
Common and Scientific Names

Red phalarope
Phalaropus fulicarius

Wilson's phalarope
Steganopus tricolor

Northern phalarope
Lobipes lobatus

Parasitic jaeger
Stercorarius parasiticus

Glaucous-winged gull
Larus glaucescens

Western gull
Larus occidentalis

Herring gull
Larus argentatus

California gull
Larus californicus

Ring-billed gull
Larus delawarensis

Mew gull
Larus canus

Bonaparte's gull
Larus philadelphia

Heermann's gull
Larus herrmanni

Black-legged kittiwake
Rissa tridactyla

Forster's tern
Sterna forsteri

Caspian tern
Hydroprogne caspia

Birds cont.

Species
Common and Scientific Names

Common Murre
Uria aalge

Pigeon guillemot
Cepphus columba

Marbled murrelet
Brachyramphus marmoratum

Ancient murrelet
Synthliboramphus antiquum

Rhinoceros auklet
Cerorhinca monocerata

Tufted puffin
Lunda cirrhata

Bank-tailed pigeon
Columba fasciata

Rock dove
Columba livia

Mourning dove
Zenaidure macroura

Barn owl
Tyto alba

Screech owl
Otus asio

Great horned owl
Bubo virginianus

Pygmy owl
Glaucidium gnoma

Burrowing owl
Speotyto cunicularia

Spotted owl
Strix occidentalis

Birds cont.

Species
Common and Scientific Names

Short-eared owl
Asio flammeus

Saw-whet owl
Aegolius acadicus

Poor-will
Phalaenoptilus nuttallii

Common nighthawk
Chordeiles minor

Vaux's swift
Chaetura vauxi

Anna's hummingbird
Calypte anna

Allen's hummingbird
Selasphorus sasin

Belted kingfisher
Megaceryle alcyon

Yellow-shafter flicker
Colaptes auratus

Red-shafter flicker
Calaptes cafer

Pileated woodpecker
Dryocopus pileatus

Acorn woodpecker
Melanerpes formicivorus

Lewis' woodpecker
Asyndesmus lewis

Red-breasted sapsucker
Sphyrapicus varius

Hairy woodpecker
Dendrocopos villosus

Downy woodpecker
Dendrocopos pubescens

Birds cont.

Species
Common and Scientific Names

Western kingbird
Tyrannus verticalis

Ash-throated flycatcher
Myiarchus cinerascens

Black phoebe
Sayornis nigricans

Say's phoebe
Sayornis saya

Traill's flycatcher
Empidonax traillii

Dusky flycatcher
Empidonax oberholseri

Western flycatcher
Empidonax difficilis

Olive-sided flycatcher
Nuttallornis borealis

Horned lark
Eremophila alpestris

Violet-green swallow
Tachycinete thalassina

Tree swallow
Iridoprocne bicolor

Bank swallow
Riparia riparia

Rough-winged swallow
Stelgidopteryx ruficollis

Barn swallow
Hirundo rustica

Cliff swallow
Petrochelidon pyrrhonota

Purple martin
Progne subis

Birds cont.

Species
Common and Scientific Names

Steller's jay
Cyanocitta stelleri

Scrub jay
Aphelocoma coerulescens

Common raven
Corvus corax

Common crow
Orvus brachyrhynchos

Clark's nutcracker
Nucifraga columbiana

Chestnut-backed chickadee
Parus rufescens

Plain titmouse
Parus inornatus

Common titmouse
Parus wollweberi

White-breasted muthatch
Sitta carolinensis

Red-breasted nuthatch
Sitta canadensis

Pygmy nuthatch
Sitta pygmaea

Brown creeper
Certhia familiaris

Wrentit
Chamaea fasciata

Dipper
Cinclus mesicanus

House wren
Troglodytes aedon

Birds cont.

Species
Common and Scientific Names

Winter wren
Troglodytes troglodytes

Bewick's wren
Thryomanes bewickii

Long-billed marsh wren
Telmatodytes palustris

Mockingbird
Minus polyglottos

California thrasher
Toxostoma redivivum

Robin
Turdus migratorius

Varied thrush
Ixoreus naevius

Hermit thrush
Hylocichla guttata

Swainson's thrush
Hylocichla ustulata

Western bluebird
Sialia mexicana

Mountain bluebird
Sialia currucoides

Townsend's solitaire
Myadestes townsendi

Blue-gray gnatcatcher
Polioptila caerulea

Golden-crowned kinglet
Regulus satrapa

Ruby-crowned kinglet
Regulus calendula

Birds cont.

Species
Common and Scientific Names

Water pipit
American pipit

Bohemian waxwing
Bombycilla garrula

Cedar Waxwing
Bombycilla cedrorum

Northern shrike
Lanius excubitor

Loggerhead shrike
Lanius ludovicianus

Starling
Sturnus vulgaris

Hutton's vireo
Vireo huttoni

Warbling vireo
Vireo gilvus

Orange-crowned warbler
Vermivora celata

Yellow warbler
Dendroica petechia

Myrtle warbler
dendroica coronata

American goldfinch
Spinus tristis

Lesser goldfinch
Spinus psaltria

Lawrence's goldfinch
Spinus lawrencei

Red crossbill
Loxia curvirostra

Birds cont.

Species
Common and Scientific Names

Freen-tailed towhee
Chlorura chlorura

Rufous-sided towhee
Pipilo erythrophthalmus

Brown towhee
Pipilo fuscus

Savannah sparrow
Passerculus sandwichensis

Grasshopper sparrow
Ammodramus savannarum

Vesper sparrow
Pooecetes gramineus

Lark sparrow
Chondestes grammacus

Rufous-crowned sparrow
Aimophila ruficeps

Sage sparrow
Amphispiza belli

Slate-colored junco
Junco hyemalis

Oregon junco
Junco oreganus

Chipping sparrow
Spizella passerina

Harris' sparrow
Zonotrichia querula

White-crowned sparrow
Zonotrichia leucophrys

Golden-crowned sparrow
Zonotrichia atricapilla

Birds cont.

Species
Common and Scientific Names

White-throated sparrow
Zonotrichia albicollis

Fox sparrow
Passerella iliaca

Lingoln's sparrow
Melospiza lincolnii

Swamp sparrow
Melospiza georgiana

Song sparrow
Melospiza melodia

Snow bunting
Plectrophenax nivalis

Gray jay
Perisoreus canadensis

Cassin's finch
Carpodacus cassinii

American avocet
Recurvirostra americana

Common tern
Sterna hirundo

Snowy Plover
Charadrius alexandrinus

Black-throated gray warbler
Dendroica nigrescens

Townsend's warbler
Dendroica townsendi

Hermit warbler
Dendroica occidentalis

Palm warbler
Dendroica plamarum

Birds cont.

Species
Common and Scientific Names

McGillivray's warbler
Oporornis tolmiei

Yellowthroat
Geothlypis trichas

Yellow-breasted chat
Icteria virens

Wilson's warbler
Wilsonia pusilla

House sparrow
Passer domesticus

Western meadowlark
Sturnella neglecta

Red-winged blackbird
Agelaius phoeniceus

Tricolored blackbird
Agelaius tricolor

Bullock's oriole
Icterus bullockii

Brewer's blackbird
Euphagus cyanocephalus

Brown-headed cowbird
Molothrus ater

Western tanager
Piranga ludoviciana

Black-headed grosbeak
Pheucticus melanocephalus

Lazuli bunting
Passerina amoena

Evening grosbeak
Hesperiphona vespertina

Birds cont.

Species
Common and Scientific Names

Purple finch
Carpodacus purpureus

House finch
Carpodacus mexicanus

Pine siskin
Spinus pinus

Rufous hummingbird
Selasphorus rufus

Nuttall's woodpecker
Dendrocopos nuttallii

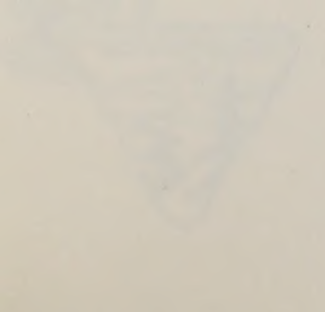
Western wood pewee
Contopus Sordidulus

Solitary vireo
Vireo solitarius

Nashville warbler
Vermivora ruficapilla

KING RANGE
NATIONAL CONSERVATION AREA
PROPOSED MANAGEMENT PROGRAM

Economic Impact Analysis



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

KING RANGE
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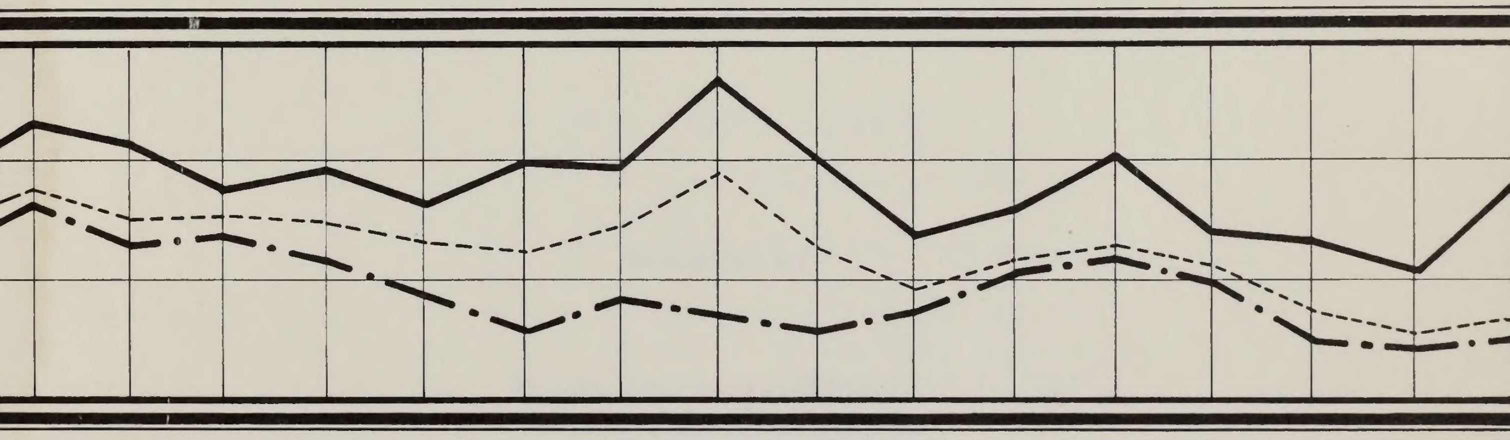
Economic Impact Analysis



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

KING RANGE NATIONAL CONSERVATION AREA

PROPOSED MANAGEMENT PROGRAM

ECONOMIC IMPACT ANALYSIS

Prepared by

California State Office
Bureau of Land Management
Department of the Interior

May, 1974

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ECONOMIC ANALYSIS OF THE KRNCA MANAGEMENT PROGRAM

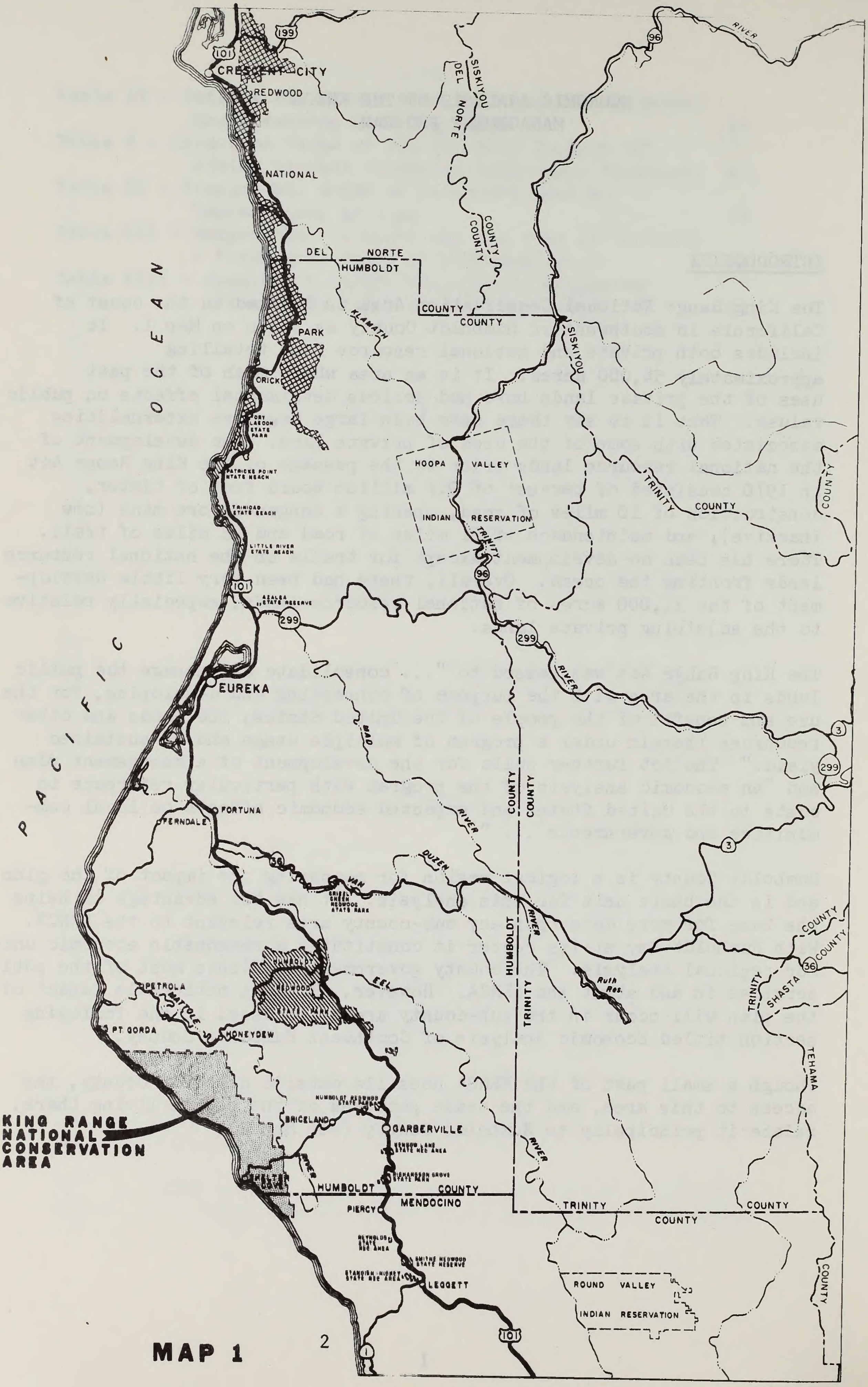
INTRODUCTION

The King Range National Conservation Area is located on the coast of California in southwestern Humboldt County as shown on Map 1. It includes both private and national resource land totalling approximately 54,000 acres. It is an area where much of the past uses of the private lands have had serious detrimental effects on public values. That is to say there have been large negative externalities associated with some of the uses of private land. The development of the national resource lands prior to the passage of the King Range Act in 1970 consisted of harvest of 9.2 million board feet of timber, construction of 10 miles of road, opening a manganese ore mine (now inactive), and maintenance of 21 miles of road and 23 miles of trail. There has been no development except for trails on the national resource lands fronting the ocean. Overall, there had been very little development of the 31,000 acres of national resource lands, especially relative to the adjoining private lands.

The King Range Act was passed to "... consolidate and manage the public lands in the area with the purpose of conserving and developing, for the use and benefit of the people of the United States, the lands and other resources therein under a program of multiple usage and of sustained yield." The Act further calls for the development of a management plan and "an economic analysis of the program with particular reference to costs to the United States and expected economic effects on local communities and governments ... "

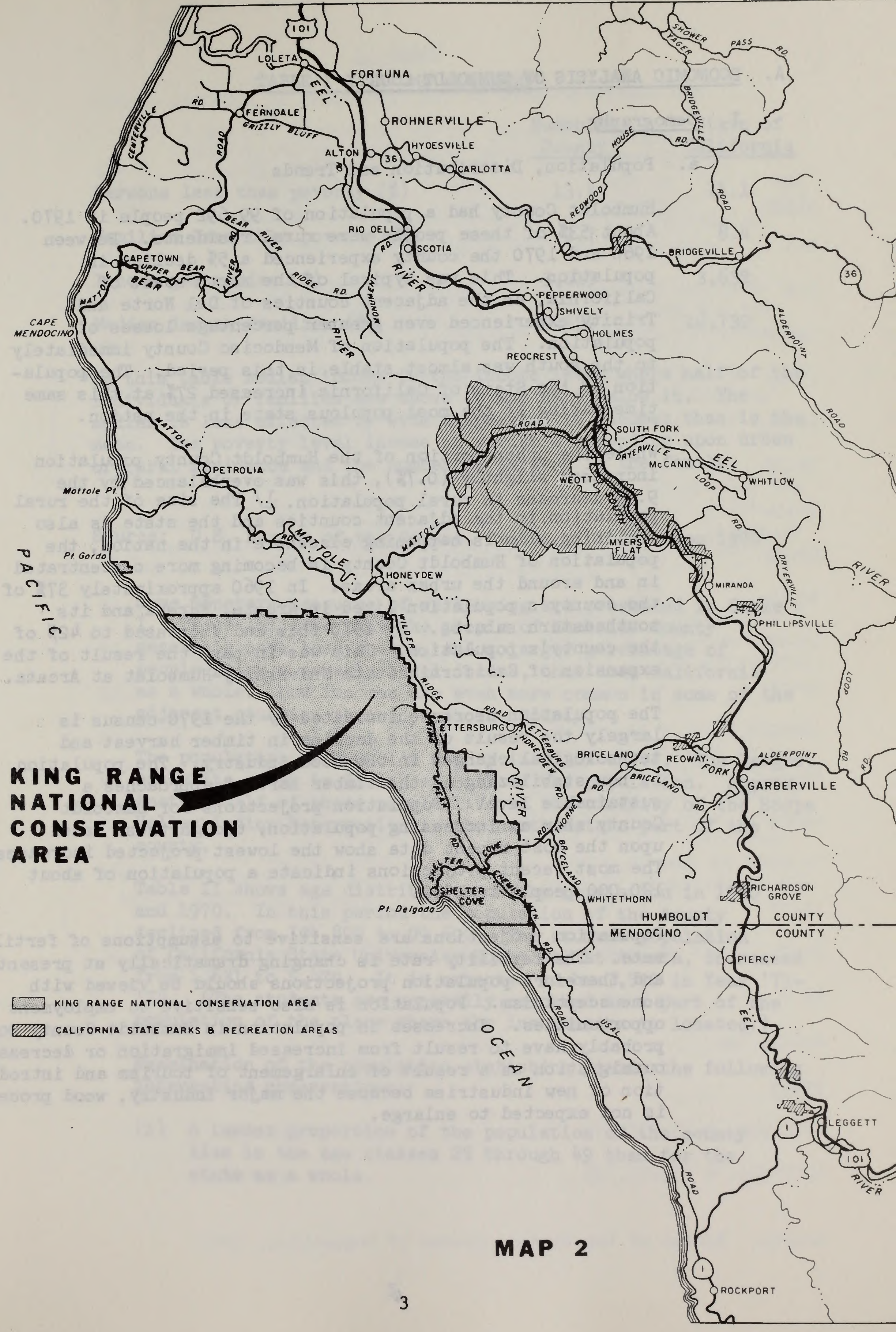
Humboldt County is a logical region for measuring the impact of the plan and is the basic unit for this analysis. It has the advantage of being the base for more data than any sub-county area relevant to the KRNCA. With Humboldt Bay at its center it constitutes a reasonable economic unit for regional analysis. The county government furnishes most of the public services in and about the KRNCA. However, the most noticeable impact of the plan will occur in the sub-county areas discussed in the following section titled Economic Analysis of Southwest Humboldt County.

Though a small part of the KRNCA does lie outside Humboldt County, the access to this area, and the trade patterns of the people living there, relate it principally to Humboldt County (see Map 2).



CRESCENT CITY
REDWOOD
NATIONAL
PARK
DEL NORTE
HUMBOLDT
COUNTY
COUNTY
SISKIYOU
DEL NORTE COUNTY
SISKIYOU COUNTY
RIVER
KLAMATH
ORICK
DRY LAGOON STATE PARK
PATRICKS POINT STATE BEACH
TRINIDAD STATE BEACH
LITTLE RIVER STATE BEACH
AZALEA STATE RESERVE
HOOPA VALLEY INDIAN RESERVATION
TRINITY
TRINITY COUNTY
COUNTY
PACIFIC OCEAN
EUREKA
MAD RIVER
TRINITY RIVER
FORTUNA
FERNDALE
EEL RIVER
VAN DUZEN
GRIZZLY CREEK REDWOOD STATE PARK
HUMBOLDT COUNTY
TRINITY COUNTY
RIVER
Ruth Res.
HUMBOLDT REDWOOD STATE PARK
PETROLA
MATTOLE
PT. GORDA
HONEYDEW
HUMBOLDT REDWOOD STATE PARK
BRICELAND
GARBERVILLE
BENBOW LAKE STATE REC AREA
RICHARDSON GROVE STATE PARK
RIVER
SHELTER COVE
HUMBOLDT COUNTY
MENDOCINO
PIERCY
REYNOLDS STATE REC AREA
SMITHE REDWOOD STATE RESERVE
STANDISH-HICKEY STATE REC AREA
LEGGETT
ROUND VALLEY INDIAN RESERVATION
TRINITY COUNTY
SHASTA COUNTY
TEHAMA
COUNTY
KING RANGE NATIONAL CONSERVATION AREA
101
199
96
299
3
36
1

MAP 1


KING RANGE NATIONAL CONSERVATION AREA
▨ KING RANGE NATIONAL CONSERVATION AREA
▨ CALIFORNIA STATE PARKS & RECREATION AREAS
PACIFIC
OCEAN
101
LOLETA
FORTUNA
EEL
FERNDALE
GRIZZLY BLUFF
RD.
CENTERVILLE
ROAD
ROHNERVILLE
ALTON
36
HYDESVILLE
CARLOTTA
SHOWER
YAGER
PASS
RD.
BRIDGEVILLE
HOUSE
REDWOOD
ROAD
BRIDGEVILLE
36
ALDERPOINT
ROAD
RIO DELL
SCOTIA
BEAR
RIVER
RIDGE
RD.
CAPETOWN
UPPER BEAR
BEAR
MATTOLE
RIVER
MONUMENT
RD.
RIVER
PEPPERWOOD
SHIVELY
HOLMES
REDCREST
CAPE MENDOCINO
MATTOLE
ROAD
SOUTH FORK
DRYERVILLE
McCANN
EEL
WHITLOW
LOOP
RD.
WEOTT
SOUTH
PETROLIA
Mottole Pt.
MATTOLE
RD.
MATTOLE
MYERS FLAT
DRYERVILLE
RIVER
Pt. Gordo
HONEYDEW
MIRANDA
PHILLIPSVILLE
WILDER
RIDGE
ROAD
LOOP
ETTERSBURG
ETTERSBURG
HONEYDEW
KING
PEAK
RD.
BRICELAND
REOWAY
FORK
ALDERPOINT
RD.
GARBERVILLE
BRICELAND
RD.
RIVER
THORNE
RD.
BRICELAND
RD.
SHELTER COVE
CHEMISE MTN.
RD.
SHELTER COVE
WHITETHORN
Pt. Delgada
HUMBOLDT COUNTY
MENDOCINO COUNTY
RICHARDSON GROVE
PIERCY
USAL
ROAD
EEL
1
LEGGETT
101
RIVER
ROAD
1
ROCKPORT

MAP 2

A. ECONOMIC ANALYSIS OF HUMBOLDT COUNTY

I. Demography

a. Population, Distribution and Trends

Humboldt County had a population of 99,692 people in 1970. About 53% of these people were rural residents. Between 1960 and 1970 the county experienced a 5% decline in population. This was typical of the north coast of California, as the adjacent counties of Del Norte and Trinity experienced even greater percentage losses of population. The population of Mendocino County immediately to the south was almost stable in this period. The population of the State of California increased 27% at this same time making it the most populous state in the nation.

While the urban portion of the Humboldt County population increased slightly (0.7%), this was overbalanced by the 9.5% decrease in rural population. 1/ The size of the rural population in the adjacent counties and the state is also declining. As is happening elsewhere in the nation, the population of Humboldt County is becoming more concentrated in and around the urban areas. In 1960 approximately 37% of the county's population lived in Arcata, Eureka and its southeastern suburbs. By 1970 this had increased to 42% of the county's population. This was in part the result of the expansion of California State University-Humboldt at Arcata.

The population decrease indicated by the 1970 census is largely the result of the decline in timber harvest and technological changes in the wood industry. The population is now stabilizing as the timber harvest approaches a sustainable level. Population projections for Humboldt County show an increasing population, though those based upon the most recent data show the lowest projected increases. The most recent projections indicate a population of about 120,000 people in 1990.

Population projections are sensitive to assumptions of fertility rate. The fertility rate is changing dramatically at present and therefore population projections should be viewed with some scepticism. Population is also sensitive to employment opportunities. Increases in population in Humboldt County would probably have to result from increased immigration or decreased outmigration as a result of enlargement of tourism and introduction of new industries because the major industry, wood processing, is not expected to enlarge.

TABLE I - INCOME MEASURES*

	Humboldt County	State of California
Persons less than poverty (%)	13.4	11.1
Families less than poverty (%)	9.7	8.4
Income per capita ($)	3,015	3,632
Median income families ($)	9,154	10,732

*In this table median income is the income level where half of the individuals or families are above it and half below it. The median is less affected by wide dispersion in incomes than is the mean. The poverty level income is variable depending upon urban or rural residence and the number of persons in the family.

Source: U.S. Bureau of the Census, Census of Population 1970

Some monetary measures of well-being are presented in Table I. These indicate that the people of Humboldt County generally have less income, and a larger percentage of people below a poverty level income, than does California as a whole. Low incomes are even more common in some of the adjacent counties than in Humboldt County.

The population of Humboldt County is 95.6% white. The largest non-white group is Indian at 3.1% of the population. Approximately half of these people live in the vicinity of the Hoopa Valley Indian Reservation in the northeastern part of the county.

Table II shows age distribution of the population in 1960 and 1970. In this period the population of the county declined from 104,892 to 99,692. The student population of California State University-Humboldt, at Arcata, increased from 1,631 to 5,479. It is expected to be 7,500 in Year '73-'74. (The students are generally recorded as a part of the population of the place where the institution is located.)

Examination of the population statistics yields the following interesting observations:

(1) A lesser proportion of the population of the county lies in the age classes 25 through 49 than for the state as a whole.

TABLE II

Age Characteristics of the Population of Humboldt County

Age Class	Hum. Co. % Change in Pop. 1960-70	Hum. Co. 1960 (%)	Hum. Co. 1970 (%)	State 1960 (%)	State 1970 (%)
U-5	- 41.4	12.29	7.57	11.1	8.73
5-9	- 20.9	11.57	9.63	10.12	9.61
10-14	- 1.0	10.01	10.42	9.02	9.84
15-19	+ 28.8	7.61	10.24	6.97	9.11
20-24	+ 40.4	6.41	9.47	6.26	8.72
25-29	+ 3.6	6.32	6.89	6.46	7.31
30-34	- 23.2	7.00	5.66	7.09	6.11
35-39	- 29.5	7.11	5.27	7.67	5.76
40-44	- 15.9	6.44	5.70	6.83	6.06
45-49	- 8.1	6.08	5.88	6.18	6.24
50-54	+ 6.3	4.97	5.59	5.22	5.43
55-59	+ 12.0	4.13	4.87	4.50	4.68
60-64	+ 24.4	3.17	4.14	3.75	3.86
65-69	+ 16.5	2.55	3.13	3.26	3.11
70-74	+ 4.9	2.05	2.27	2.53	2.43
75-79	+ 20.7	1.25	1.58	2.96	1.71
80-84	+ 48.6	0.65	1.01		1.06
85 +	+ 74.0	0.38	0.70		0.72
Median Age		26.7	26.9	30.0	28.1

State	Humboldt County
1960 pop. = 15,717,204	104,892
1970 pop. = 19,953,134	99,692

Source: Bureau of the Census, Census of Population, 1970

(2) A greater proportion of the population of the county lies in the age classes 10 through 24 than for the state as a whole.

(3) A greater proportion of the county population lies in the 50 through 69 age classes than for the state.

(4) The county population increased between 1960 and 1970 in two general age categories: 15 to 29 years and 50+. Population decreased in the other categories and overall.

These observations, plus some knowledge of employment in Humboldt County leads to the thesis that people between the ages of 25 and 50 are tending to leave the county due to lack of employment opportunities.

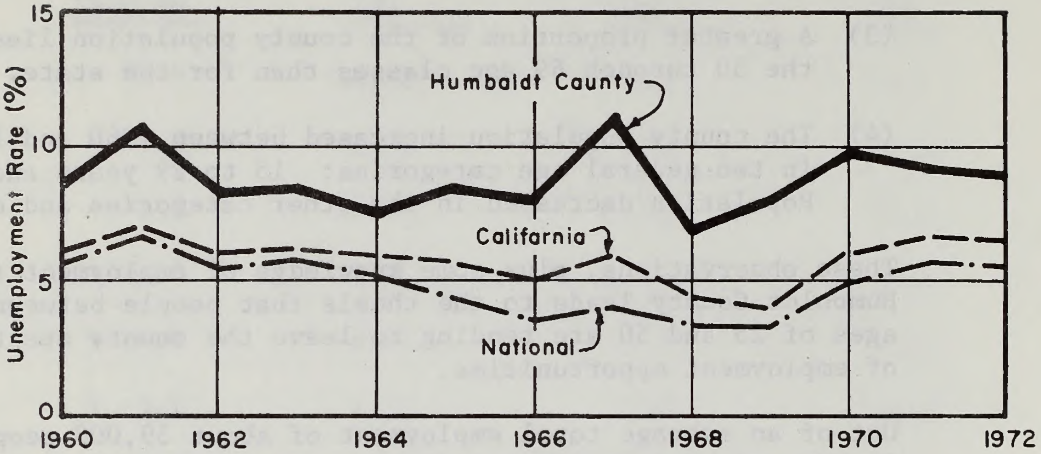
Out of an average total employment of about 39,000 people, the lumber and wood products industry accounts for about 8,700. This is about 22% of the county's total employment. It should be remembered that these are average figures and that the actual ones at any given moment are quite variable.

An even larger employment sector is government. This sector accounts for approximately 23% of the employment with about 9,000 employees. This includes the employees of the university and the County of Humboldt.

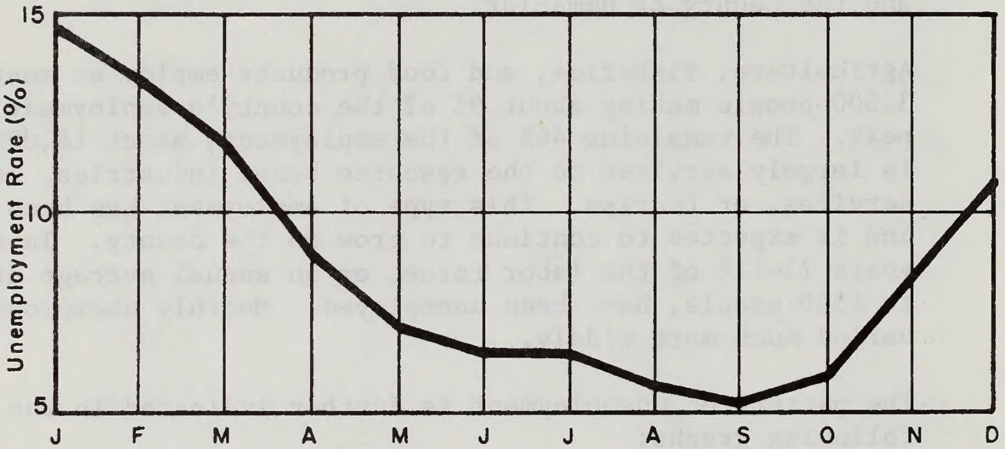
Agriculture, fisheries, and food products employ at most about 3,500 people making about 9% of the county's employment at its peak. The remaining 46% of the employment, about 18,000 jobs, is largely services to the resource based industries, consumer services, or tourism. This type of employment has been growing and is expected to continue to grow in the county. In recent years 7%-11% of the labor force, or an annual average of 2900 to 4500 people, have been unemployed. Monthly unemployment has varied much more widely.

The pattern of unemployment is further indicated in the following graphs:

COMPARATIVE UNEMPLOYMENT RATES*
1960–1971



AVERAGE MONTHLY UNEMPLOYMENT RATES**
HUMBOLDT COUNTY
1960–1971



*These are annual average unemployment rates expressed as a percentage of total labor force

** Actual rates, not adjusted for seasonal variations

Source: California State Department of Human Resources

The county's employment situation has been summarized as follows:

> "The general economic problem of Humboldt County is often characterized as one of excessive dependence on one industry, lumber (or more accurately, the forest products industry), which tends to be rather cyclical in nature over time, and highly seasonal in terms of employment. Unfortunately, other natural resource based industries of the county (agriculture, fisheries and recreation-tourism) tend to accentuate the seasonality of employment. During the summer months logging activity is in full swing, coinciding with the peak seasonal labor periods of agriculture and fisheries. In addition, the summer vacation period is when most tourists visit the county for fishing, hunting, and enjoyment of the scenic Redwood Parks and ocean beaches."[2/]

II. Industries

a. Forest Products

Throughout Humboldt County one is conscious of the nearness of the forest. This presence is made known not only by the trees, but also by the names, decor, and types of businesses present. But only 22% of the employment and income to people in the county directly involves harvesting timber, manufacture of wood products, or transportation of wood. This is about 85% of the county's manufacturing employment. There is an average of about 8,700 jobs of this sort in the county.[3/] In 1969 the forest products industry generated $138,102,000 in value added.[4/] This was about 35% of all value added in the county. The land base for this industry is 75% of Humboldt County's land area.[5/] In addition, the mills in the county also process some logs and wood chips from outside the county.

Humboldt County's timber harvest is the largest in California at 1,006 million board feet in 1970.[6/] This is 22% of the entire California harvest. For the foreseeable future the county is expected to continue to be California's largest volume timber producer.

Redwood is recognized as a major part of the timber harvest but it constitutes less than one half of the county's harvest. In Humboldt County a greater volume of Douglas-fir than redwood is cut. The proportion of timber cut which is redwood will probably increase as the presently nearly mature second growth redwood stands reach harvest age. Much of the Douglas-fir harvest is from over-mature stands on low productivity sites. As a result Humboldt County may be expected to continue to be known as a major redwood producing area.

Most of the timber harvest, and all of the redwood harvest, is from private industry lands. Cutting is concentrated in the remaining over-mature stands. As this practice is continued, the harvest from private lands in the county will decline. It was reported in 1968 that only a fifteen-year private supply of large sawtimber was available at the then current cutting level.[7] By 1970 the cut had declined to 86% of the 1969 level.[8] The trend in timber harvest from public lands is to increase in both relative and absolute measures, compensating somewhat for the reduction from private lands.

The decline in total timber harvest may be accompanied by a more than proportional decrease in forest products industry employment. This would result from the changes in harvesting and manufacturing technology. The current pattern of milling technology is for outmoded mills, geared to large logs, to be replaced by mills able to economically accommodate smaller logs, utilize a greater proportion of the log, and at the same time employ fewer people. Employment in the lumber, wood products, and paper industries in the north coastal subregion has been projected to decline by 1980 to 80% of the 1965 level.[9]

Forest industry employment is concentrated in the Humboldt Bay area where the cities of Arcata and Eureka are located. This area has the only two pulp manufacturing plants in the north coastal region of California. No paper is manufactured at these plants; the pulp is shipped by water for final processing at plants closer to population centers.

93.6 million and 65.9 million board feet of logs were exported from Eureka in 1970 and 1971 respectively.[10] Some of these logs came from outside of Humboldt County, so the percentage of Humboldt grown logs which is exported is quite small (less than 10%). Current legislation prohibits exportation of any logs grown on federally owned land. In addition to logs and pulp, some wood chips and lumber are also exported by way of Eureka.

The recent creation of the Redwoods National Park meant the loss to the county's redwoods industry of a significant part of its best remaining, and potentially most productive, stands. This is not expected to cripple the industry, but rather to curtail planned expansion and limit further employment in the industry.

Employment in the forest industries fluctuates in response to two major variables. The first is the season of the year. Most logging is done in the summer months. Also, the demand for building materials is greatest in the summer. This results in wide variation in logging employment and some variation in mill employment on a seasonal basis. The second variable is the widely fluctuating demand for wood associated with variations in housing construction starts. The lumber industry has traditionally suffered through a boom and bust cycle. Places such as Humboldt County, which depend upon the lumber industry for a large part of their employment, go through noticeable changes in prosperity in response to changes in the rate of housing starts.

b. Fishery

The City of Eureka is one of the major fishing ports in California. Over one-half of the commercially caught salmon in California comes to the processing and market facilities of Eureka. The fishery in this area consists primarily of Dover sole, albacore tuna, salmon, Dungeness crab, and groundfish. Two processing plants are located at Eureka. Fresh, frozen and canned fish is shipped to markets outside of Humboldt County.

The fishery provides employment for 1,800 to 2,100 workers.11/ This is about 5% of total employment. This employment tends to be very seasonal in nature with a summer peak as the salmon catch is brought in.

Approximately 4% of the household income of the county is generated by the fishing industry, and $12,000,000, or 3% of the value added.12/

The fishing industry is not expected to enlarge much in the near future because two of the most important species, salmon and crab, are apparently suffering from the fishing pressure and environmental factors. The recent uptrend in prices for fish has stimulated both the fishermen and processors to consider new investments in the industry. As of July, 1973, prices received by fishermen for the larger sizes of salmon were reported at $1.15 per pound. This was an all time high and was accompanied by a relatively good catch.

c. Agriculture

Agricultural employment in Humboldt County varies seasonally from 1,375 to 2,000 employees.13/ Agriculture accounts for 3% of the county's value added.14/

The agriculture industry is livestock oriented. Dairy farming produces more income than any other form of agriculture.15/ It is centered in the lowlands around Humboldt Bay. Livestock production is the second largest income producer. This is mostly cattle, but it also includes sales of about 30,000 sheep per year. Sheep are primarily grown in the southwestern portion of the county. Cattle and milk production is increasing, but sheep production and most other forms of agriculture are either static or are decreasing in production. With lamb and wool incentive payments due to cease with the present year's crop, sheep growing will probably decline somewhat further in spite of an increasing price for lamb and wool.

Field crops and fruit and nut crops are the next most important segments of the agriculture industry. The field crops largely support the dairy livestock.

Agriculture in Humboldt County may be expected to remain stable or become more specialized in milk production. It will continue to be largely confined to the bay and coast strip.

d. Recreation and Tourism.

Humboldt County is well known nationally for its stands of mature redwood trees. An extensive area of these massive trees is preserved by state, federal and local agencies in the county. The redwood parks are the center of attraction for thousands of tourists each year. In addition to the redwoods, visitors are attracted by the coastline, the timber industry, and the fishing opportunities.

Tourist facilities are concentrated along the main access route, U.S. Highway 101. As with the county's other industries, the tourist industry is located largely in the Humboldt Bay vicinity. Seventy-six motels are listed in the yellow pages of the Humboldt County telephone book. The employees of these businesses would constitute about 1.1% of the county's total employment. This reflects only a portion of the tourist's expenditures. Tourists also purchase goods and services from the retail establishments, the sport fishing fleet, the food and entertainment sector, and the automotive supply and service businesses.

Many of the people who visit Humboldt County camp. Most of the camping facilities are provided by the State Department of Parks and Recreation. This agency maintains 679 camping units, most of them in redwood parks. 16/ The demand for these facilities is such that it is necessary for prospective users to reserve some of them six months in advance of the peak summer season. These units are customarily full throughout the months of June, July and August. The National Park lands are managed to provide no intensive automotive-oriented camping. The management philosophy is to preserve and enhance a unique resource. The development of privately owned campgrounds is encouraged by the Park Service.

Visitor attendance at the Department of Parks and Recreation facilities in the county is about 2 million per year. 17/ Attendance at the parks in the northern part of the county seems to be increasing due to the publicity about the Redwood National Park. Attendance at the parks in the southern part of the county is less regular; Department of Parks and Recreation officials indicate that it is sensitive to summer temperature conditions.

The recreation and tourism sector is predicted by most authorities to have a healty rate of growth. This growth is presently evidenced by new motel construction in the Humboldt Bay area, and recreation home construction along the coast and major drainages. As in the other industries, the employment generated tends to be seasonal with a summer peak in employment.

e. Other Industries

Approximately 70% of the county's employment is in industries other than lumber and wood products, fishery, and agriculture. Much of this employment is produced to service the basic industries and thus may be tied to their impact.

Government is included in this category and provides employment for 23% of the county's workers. Two colleges account for much of this: College of the Redwoods and California State University-Humboldt. Both of these employers are located in the Humboldt Bay area and their employment tends to reach a summer low.

Of all the major employment sectors, only the services and government sectors show a consistent pattern of growth from 1959 to the present. The trend in Humboldt County employment is away from timber industry dominance. The decline in timber industry employment has largely been picked up by services and government employment. As in the rest of the nation, the services sector may be expected to grow in support of changed tastes, increasing recreation expenditure, and more complex technology.

B. ECONOMIC ANALYSIS OF SOUTHWEST HUMBOLDT COUNTY

I. Introduction

The King Range influence zone and southwestern Humboldt area are defined and described in this section for the ultimate purpose of analyzing the economic impact KRNCA plan. Basically the southwestern Humboldt Area is the region south of the Eel River delta and west of that river in Humboldt County. The King Range influence zone is the drainage of the main stem and Upper Mattole River outside of the King Range National Conservation Area (see Map 3). Both the southwestern Humboldt area and the influence zone include a part of Mendocino County. This is included because part of the King Range National Conservation Area lies in Mendocino County. This area does logically fall into an economic analysis of southwestern Humboldt County because the road access is largely through Humboldt County and the people living there tend to trade in Humboldt County.

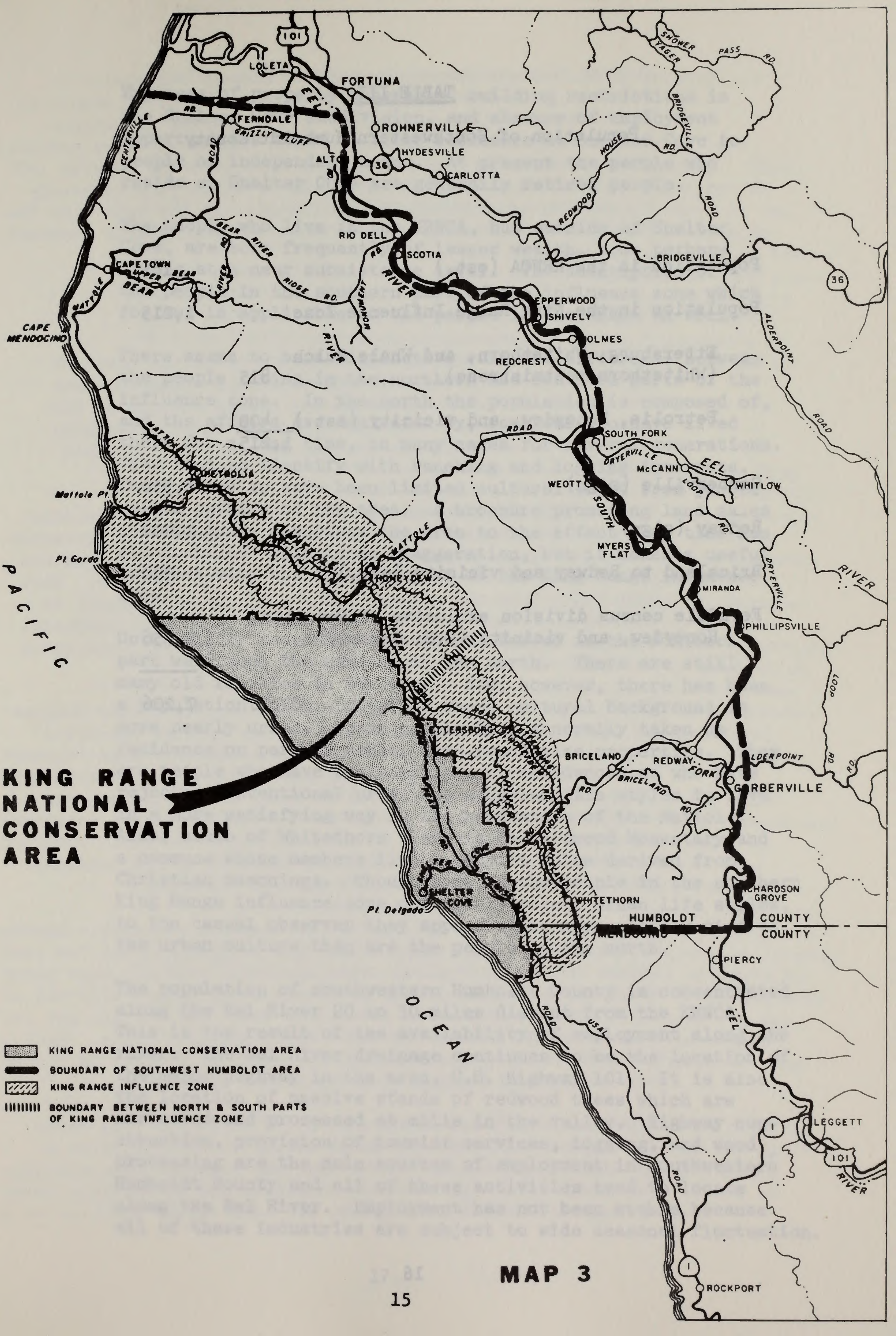
The southwestern Humboldt area is selected with the intent of including all of those areas in which a significant impact from the KRNCA might be felt. The King Range influence zone is a subpart of the southwestern Humboldt area. This is the area in which the economic impact of the plan is likely to be most obvious. It was selected primarily on the basis of location of concentrations of people and their transportation patterns. The influence zone is discussed in some places in this report as having north and south parts. The boundary between these parts is shown on Map 3.

There is a scarcity of hard data concerning sub-county areas. This is due to the following factors. Generalizations concerning small populations are relatively less useful than for large populations because deviations from the average are both more apparent and more significant. On very small populations the problem of disclosure is limiting. Consequently, the smaller the area or population, the less likely one is to find social and economic data available.

II. Demography

a. Population and Distribution

The resident population of the KRNCA, King Range influence zone, and southwestern Humboldt County is indicated in Table III. The number of people living within the KRNCA is estimated at 185. Most of these people live at Shelter Cove, along the southern end of the Kings Peak Road, or along the road to Whale Gulch. The rest of the KRNCA is almost completely lacking in people and services.


KING RANGE NATIONAL CONSERVATION AREA
KING RANGE NATIONAL CONSERVATION AREA
BOUNDARY OF SOUTHWEST HUMBOLDT AREA
KING RANGE INFLUENCE ZONE
BOUNDARY BETWEEN NORTH & SOUTH PARTS OF KING RANGE INFLUENCE ZONE
PACIFIC
OCEAN
101
LOLETA
FORTUNA
EEL
FERNDALE
ROHNERVILLE
HYDESVILLE
ALTON
36
CARLOTTA
CENTERVILLE RD.
GRIZZLY BLUFF
RIO DELL
SCOTIA
RIVER
BEAR RIVER RIDGE RD.
MONUMENT RD.
CAPETOWN
UPPER BEAR
MATTOLE
CAPE MENDOCINO
PEPPERWOOD
SHIVELY
HOLMES
REDCREST
SHOWER PASS RD.
YAGER
BRIDGEVILLE
HOUSE RD.
REDWOOD
BRIDGEVILLE
ALDERPOINT ROAD
ROAD
SOUTH FORK
DYERVILLE LOOP
McCANN
WHITLOW
WEOTT
SOUTH
PETROLIA
Mattole Pt.
Pt. Gordo
HONEYDEW
MYERS FLAT
MIRANDA
RIVER
DYERVILLE
PHILLIPSVILLE
LOOP RD.
ETTERSBURG
BRICELAND
REDWAY
FORK
ALDERPOINT RD.
GARBERVILLE
BRICELAND RD.
SHELTER COVE
Pt. Delgado
WHITETHORN
RICHARDSON GROVE
HUMBOLDT COUNTY
MENDOCINO COUNTY
PIERCY
USAL ROAD
EEL
1
LEGGETT
101
RIVER
ROAD
1
ROCKPORT

MAP 3

TABLE III

Population of Southwestern Humboldt County

Population in the KRNCA (est.)		185
Population in the King Range Influence Zone		1,215
Ettersburg, Whitethorn, and Whale Gulch (Whitethorn postmistress)	815	
Petrolia, Honeydew, and vicinity (est.)	400	
	1,215	
Garberville (sign)		1,350
Redway (sign)		1,400
Briceland to Redway and vicinity (est.)		300
Ferndale census division exclusive of Petrolia, Honeydew, and vicinity (U.S. Census)		2,756
TOTAL		7,206

Expenses of property ownership, building restrictions in the Shelter Cove subdivision, and absence of employment opportunities tends to limit residence at Shelter Cove to people of independent means. At present the people who reside at Shelter Cove are generally retired people.

The people who live in the KRNCA, but outside of Shelter Cove, are more frequently of lesser wealth, some perhaps living at a near subsistence level. The description of the people in the southern part of the influence zone which follows is applicable to the people in the KRNCA as well.

There seems to be a distinctive cultural difference between the people living in the northern and southern parts of the influence zone. In the north the population is composed of, and the affairs are dominated by, families who have lived there for a long time, in many cases for several generations. They tend to identify with ranching and logging interests. There seems to have been limited cultural input from people raised outside of the area. A brochure promoting land sales near Honeydew describes the area to the effect that time has stood still. This is an exaggeration, but it makes a useful contrast with the southern part of the King Range influence zone.

Until fairly recently the cultural forces in the southern part were much the same as in the north. There are still many old families in the area. Now, however, there has been a population influx of people whose cultural background is more nearly urban. These people have generally taken up residence on parcels rather than ranch-size properties. They are people who have built retirement residences or who have rejected conventional urban and suburban life styles to live in a more satisfying way in the headwaters of the Mattole. Also, south of Whitethorn there is the Redwood Monestary and a commune whose members live by strict rules derived from Christian teachings. Though most of the people in the southern King Range influence zone ostensibly reject urban life styles, to the casual observer they appear to be more closely tied to the urban culture than are the people in the north.

The population of southwestern Humboldt County is concentrated along the Eel River 20 to 30 miles distant from the KRNCA. This is the result of the availability of employment along the river. The Eel River drainage continues to be the location of the major highway in the area, U.S. Highway 101. It is also the location of massive stands of redwood trees which are harvested and processed at mills in the valley. Highway construction, provision of tourist services, logging, and wood processing are the main sources of employment in southwestern Humboldt County and all of these activities tend to locate along the Eel River. Employment has not been stable because all of these industries are subject to wide seasonal fluctuation.

Highway construction employment is largely responsive to progress in reconstructing Highway 101 to freeway standards. The timber industry is subject to wide market variations. Decreases in construction and timber employment were probably major reasons for the 33% decline in population between 1960 and 1970 in the Garberville census division (approximately the southern one-fifth of the county). At the same time the population of the Ferndale division remained nearly constant.

III. Industries

a. Timber

Logging and wood processing continues to be the dominant industry in southwestern Humboldt County. Redwood trees and sustained yield management are common outside of the King Range influence zone but timber on small ownerships continues to be mined rather than managed for sustained yield.

A primary difference between the King Range influence zone and Humboldt County is the absence of a manufacturing sector in the influence zone. Numerous mill sites remain from the timber boom which occurred from 1950 to the mid-60's. That boom ended when the private lands were largely denuded of merchantable timber. The mills were closed and dismantled; the mill employees left the area and it returned once again to livestock ranching and sporadic logging.

The forests of the influence zone are largely of the Douglas-fir type. Until the post-war boom this species was not a commercial species in the area. The landowners were ranchers. Their interest was in marketing more livestock, principally sheep. Fire was a major tool in their efforts to enlarge their forage acreage. Damage to the forest was not considered important because it had no economic value to them. Frequently the fires started by the ranchers extended to the national resource lands in the northern part of the KRNCA.

Following World War II Douglas-fir became a marketable species in the area. Many lumber mills were established and the landowners set out to exploit their new-found wealth. What resulted was a rapid removal of the privately-owned timber with all of the consequences usually associated with "cut out and get out" logging except land abandonment for delinquent taxes. Much of the area has subsequently been re-logged as increasing prices made salvage or logging on steep ground profitable.

There was no private landowner in the influence zone whose forest land ownership was large enough to be managed on a sustained yield basis. The timber was regarded as a one-time only crop. With the current stumpage price escalations there is renewed interest in logging, but land values continue to be largely determined by potential for livestock grazing and recreation residential use.

Within the KRNCA most of the privately-owned timber land, with the exception of the west slope, has been logged. There are some old mill sites still visible but now there are no mills and little logging activity in the KRNCA. Much of the national resource land is stocked with over-mature Douglas-fir trees. Timber sales on these national resource lands have totalled 9.2 million board feet. All of these sales took place between 1964 and 1967. No timber sales have been held there since 1966 due first to proposed land exchanges to create National Parks, and then postponement pending formulation of the KRNCA management plan. The industry dependence on these lands is zero at present.

b. Agriculture

There is no significant agricultural activity within the King Range National Conservation Area except for extensive livestock grazing in the northern one-third of the KRNCA. This is almost exclusively sheep grazing. The bulk of the forage grows on land in private ownership having ocean exposure. This is used on a year-round basis with a minimum of stock management. Approximately 1% of Humboldt County's sheep forage is produced in the KRNCA. The Shelter Cove area, which used to produce crops and livestock for the San Francisco market, now is occupied by a subdivision and has passed out of agricultural production. Very little of the rest of the KRNCA has soils which are compatible with agriculture. People living in the area frequently raise home gardens but this is not considered a significant agricultural activity.

At the present the BLM leases only one area within the KRNCA for livestock forage. This area contains 160 acres and furnishes 76 animal unit months of forage, enough to support about 32 sheep on a year-round basis. In the KRNCA as a whole about 1274 animal unit months of forage is available for domestic livestock. This supports about 530 sheep grazing all year long.

Agriculture in the King Range influcence zone is confined largely to the Mattole Valley. Again the dominant form of agriculture is livestock grazing. Apple orchards along parts of the Mattole River are the only other notable form of agriculture. At the turn of the century the Mattole Valley was a very important source of fresh fruit for San Francisco. The orchards are now generally mature and declining in importance.

Except for the coastal areas and river valleys, there is little agriculture in southwestern Humboldt County. Most of the agriculture consists of cattle and sheep grazing. A very small percentage of the land is actually tilled and very little of the area has soils which are suitable for agriculture.

c. Recreation and Tourism

Recreation use of the KRNCA and influence zone is confined largely to the summer season due to the rainy and windy conditions which typify much of the area in the winter. The exception is the steelhead season on the Mattole River which opens on November 15.

Shelter Cove is the greatest tourist attraction in the KRNCA or the influence zone. In addition to the subdivision, at Shelter Cove there are two motels, a restaurant, a grocery store, a fishing supply store, an airplane landing strip, a commercial fish purchase and storage facility, a boat rental and launching facility, and a privately-owned campground with 70 spaces. In the summer of 1973 1,052 parties used this campground. In the summer of 1973 there were almost 890 boat rentals and 1,780 private boats launched. Approximately 3,500 people fished from the shoreline making a total of about 11,500 people using the fishing and boating resources at Shelter Cove.18/ This attraction helps to explain the fact that there is two to three times as much recreational traffic on the Shelter Cove Road as on the roads in the northern area.

Shelter Cove has been divided into approximately 4,900 lots. Most of these have been sold and a total of about 40 residences now exist there. They are generally full-time residences.

Ocean fishing is an important activity at Shelter Cove. People fish from boats and from the rocks for salmon and rockfish. The area is noted as one of the finest ocean fishing spots in California. A commercial salmon catch of 58,000 pounds with an average value of $1.00 per pound was brought ashore there in 1973. 19/

In addition to the fishing, many people visit Shelter Cove for beach recreation. The beach from Telegraph Creek northward is a popular spot for dune buggy and four-wheel drive vehicle operation. Other people use the beaches for hiking, camping, picnicking, and sun-bathing. This is one of the few places in northern California where all of these opportunities are available. Approximately 1,100 people used the beach for off-road vehicle operation and 650 used it for hiking in the summer of 1973. 20/

Away from Shelter Cove recreation use is much less intensive. The BLM maintains two campgrounds south of the Shelter Cove Road. From these road access to Shelter Cove is convenient enough for some people to camp there while carrying out most of their recreation activities at Shelter Cove. There are two more BLM campgrounds between Queen Peak and Saddle Mountain. They are convenient for access to the high ridges but not to the ocean. Hiking and hunting are common activities in that area. In the summer of 1973 the southern campgrounds accommodated 16 parties per day and the northern ones 5 parties per day.

Along Nooning Creek and adjacent areas of the Mattole River swimming and sun-bathing are popular, though no public facilities have been developed to support these activities.

There are steelhead and trout in the streams in the KRNCA but fishing is limited by lack of public access and fishing regulations. The Mattole River and Bear Creek are important steelhead and salmon spawning areas which support fishing further downstream.

The King Range influence zone may be divided into two areas for a discussion of recreation and tourism. The two areas tend to be separate both physically and culturally, in part due to the two main access routes shown on Map 3. Very few of the travelers on these routes use the connecting roads in the influence zone.

In the southern King Range influence zone the only food store is at Whitethorn. This store is not of modern construction and offers a rather limited range of merchandise. Adjacent to the store is an automotive service facility. These businesses probably do not benefit much at present from tourism.

Black-tail deer is the most sought after species by hunters. Since the KRNCA is one of the few areas in southwestern Humboldt County where the public has legal hunting access, hunters tend to concentrate there. Hunter success is hampered by the ownership pattern and dense brush. Approximately 300 hunting parties use the KRNCA.

In the north area the only place where the public has access to the ocean from a road is at the mouth of the Mattole River. All types of beach recreation except swimming and boat access are available here. This is the only location of concentrated beach use in the northern area. Some people take advantage of the opportunity to enjoy a back-country camping and hiking experience by hiking between the mouth of the Mattole River and Shelter Cove. Fishing on the Mattole River for steelhead and trout is popular in the northern area. It is estimated that 500 steelhead and 400 salmon are caught in the Mattole River each year.[21] This activity contributes to the support of the two motels and restaurants in the Honeydew vicinity. The two stores at Honeydew and Petrolia also benefit from sales of fishing supplies and food.

In the past there has been some sale of hunting rights in the northern area but sales of hunting rights must be regarded as sporadic. The existence of good hunting may, however, be a factor justifying non-resident land ownership.

Public camping facilities in the northern area are much more limited than in the south. Camping is permitted on the sand at the mouth of the Mattole. No facilities have been developed there. Between Honeydew and Petrolia there is a county campground on the east bank of the Mattole River. This spot is popular for family camping, picnicking, fishing and swimming. It does not provide access to any national resource land.

The highway from Fernbridge, through Honeydew, to Bull Creek is a popular route for an afternoon drive by people living in the Humboldt Bay area. Recreation travel on weekends over this route is much greater than on week days. Very few vehicles go from Honeydew to the Shelter Cove Road via Wilder Ridge or the Kings Peak Road. Table IV shows driving times between various points in and about the KRNCA.

The bulk of the recreation and tourism activities in southwestern Humboldt County are concentrated along Highway 101. Only a very small percentage of the motels, restaurants, camps and automotive service facilities are located away from that major route. People who come from places outside of Humboldt County stay almost exclusively along Highway 101.

IV. Public Services

Many of the people living in the southwestern Humboldt area are distant from the public school facilities. The only high schools in the area are located at Miranda and Ferndale. Students living in the southern part of the influence zone and the KRNCA travel to the high school at Miranda by bus. High school students from the northern part of the influence zone and KRNCA attend the school at Ferndale on a boarding basis. Though there are more elementary schools than high schools in southwestern Humboldt County, there are no schools in the KRNCA and only two in the influence zone. An elementary school at Whitethorn serves people living in the southern area and one at Petrolia serves people in the north. There are several additional elementary and junior high schools in the southwestern Humboldt area outside of the influence zone.

Fire protection and suppression services throughout the KRNCA, the influence zone, and most of the rural areas of the southwestern Humboldt area are provided by local volunteer departments and the California Division of Forestry (CDF). There are volunteer fire units at Petrolia and Whitethorn. A system of hydrants, pumper truck, and a professional fireman provides protection at Shelter Cove.

TABLE IV

Mileage and Driving Time
(pre-energy shortage)

	Miles	Driving Time Hr.:Min.	Average MPH
A typical Sunday drive from Eureka:			
Eureka			
	50	1:33	32
Petrolia			
	14	0:30	28
Honeydew			
	23	1:0	23
Hwy. 101 (Hum. Rwd. S.P.)			
	40	0:44	55
Eureka (via Hwy. 101)			
Total	127	3:47	34
An alternative route from Honeydew back to Eureka:			
Honeydew			
	20	0:30	40
Shelter Cove Road (via Wilder Ridge)			
	12.5	0:19	39
Garberville & Hwy. 101			
	64	1:04	60
Eureka			
Total	96.5	1:53	51
One-way travel for a typical overnight visit:			
San Francisco			
	217	4:00	54
Garberville			
	25	0:55	27
Shelter Cove			
Total	242	4:55	49

NOTE: Rows titled "Total" show the distance, driving time and average speed for the preceding segments. The times shown are for a lightly loaded vehicle with a driver who is familiar with the route.

The CDF provides wildfire protection to the private and public lands. CDF fire suppression costs are not assessed to the private landowners unless they are found to have been responsible for starting the fire. Private landowners contribute to the CDF operation by paying a tax based upon amount of acreage and land use. The BLM has an agreement with the CDF whereby the BLM pays suppression costs for the part of the suppression activity which has taken place on public lands. In other words, the BLM is directly liable for suppression costs on its land but private landowners are not. The BLM also pays about $13,000 annually for CDF presuppression activities in the KRNCA.

Law enforcement in the southwestern Humboldt area is provided by the California Highway Patrol and the sheriffs of Mendocino and Humboldt counties. The Highway Patrol has a substation at Garberville but its officers enforce only the California Vehicle Code and control vehicle movement on roadways. Non-vehicle type offenses are the concern of the sheriff's department.

The Humboldt County sheriff maintains a substation at Garberville and a resident deputy at Petrolia. The Mendocino County portion of the southwest Humboldt area is rather inaccessible to the Mendocino County officers because the nearest ones are stationed at Leggett, Laytonville and Fort Bragg. Since there is at present no cooperative agreement between the Mendocino and Humboldt County sheriffs covering this area, it receives very little law enforcement service.

Solid waste disposal in the KRNCA and the influence zone is provided by Humboldt County via a container system. Containers for collection of local waste materials are set at Shelter Cove, Thorn Junction, and between Petrolia and Honeydew. Mendocino County provides no waste disposal facilities for its portion of the area. It is not known whether waste from Mendocino County finds its way into the Humboldt County containers. Waste material from the BLM campgrounds is disposed of at the Humboldt containers and the capacity seems to be quite adequate for the current use.

In southwestern Humboldt County almost all of the roads are maintained by the county. The only state highway in the area is Highway 101.

Table V shows the amount of road maintained by the counties in the KRNCA. Only the Shelter Cove Road and the roads in the Shelter Cove subdivision are paved. The counties' maintenance expense on the paved roads appears to be substantial but data is unavailable at this time. The unpaved roads receive maintenance in the form of road grader work once or twice a year. Maintenance work on the 21 miles of BLM maintained roads in the KRNCA amounts to about $80/mile/year.

TABLE V

County Roads in the KRNCA

	Miles
Mendocino County	2
Humboldt County	
Chemise Mtn. Road	4
Kings Peak Road	10.5
Shelter Cove Road (boundary to Toth Road)	6
Roads in Shelter Cove Area	41
	63.5

In the King Range influence zone all of the public roads are county roads. Roughly one-half of the mileage is paved. Road maintenance shops are maintained at Honeydew and Shelter Cove for the purpose of maintaining the county roads.

Water, sewer, electrical supply, golf course, and building code enforcement are provided in the Shelter Cove subdivision by the Resort Improvement District No. 1. This is a special district created to service the Shelter Cove subdivision. It is supported by a property tax on land and improvements in the subdivision.

The services from local government entities are largely financed through property taxes. The amount which a property owner owes each year depends upon the value of his property, the assessment ratio, and the tax rates for the various entities which have jurisdiction over his property. Property tax rates, including all applicable jurisdictions, ranged from approximately $9.50 to $12.00 per $100 of net assessment in the 1972-73 tax year for the KRNCA and influence zone. The rate for Humboldt County properties will be significantly lower in 1973-74 due to reassessment and revenue sharing. The highest rate in the area is for Shelter Cove where the Resort Improvement District No. 1 accounted for $2.15 of the tax rate. The assessment ratio for Humboldt and Mendocino counties is 0.25. That is the ratio of the county assessor's "full cash value" to the assessed value of the property. (The full cash value is usually much less than the market value determined by professional appraisers.) If a property in the Shelter Cove subdivision had a full cash value of $20,000, its property tax for 1972-73 would have been $556.

C. ECONOMIC IMPACT OF THE KRNCA MANAGEMENT PLAN

I. Introduction

This report is primarily an analysis of the economic impacts related to the proposed management program for the KRNCA. If the reader desires additional information on details of the plan, or complete rationale for decisions, he is advised to consult the "King Range National Conservation Area Proposed Management Program", KRNCA volumes titled "Management Framework Plan", "Coordinated Activity Plan", and "Appendices to the Coordinated Activity Plan."

The KRNCA will be the location of most of the activities discussed in the plan. The King Range influence zone is the area in which the local communities will feel the greatest impact outside of the KRNCA. (Map 3). It is the area which best conforms to the reference in the Act to local communities. The boundary of the influence zone consists largely of the KRNCA boundary and the edge of the Upper Mattole watershed. The transportation pattern and culture contribute to the selection of this area for analysis of impacts on local communities. It is the area of the most concentrated public interest in the plan and will be the residence of most of the people who gain employment directly resulting from BLM activities in the KRNCA.

The area indicated on Map 3 as the southwest Humboldt area includes all of the KRNCA and its influence zone. A portion of Mendocino County is necessarily involved because the KRNCA lies partially in that county. It is expected that the southwest Humboldt area includes most of the people who will feel a significant direct or indirect effect from implementation of the plan. People living outside of the southwest Humboldt area who are likely to feel a significant impact are those involved in harvesting timber from the land elsewhere in the county which will be exchanged for private land in the KRNCA, and people whose recreational interests find fulfillment through visits to the KRNCA.

Two lower five-year program funding levels are discussed in this report in addition to the Proposed Management Program. These alternatives would not alter the ultimate overall plan but would slow its implementation by doing less in the first five years. These alternatives are total funding for the first five years of $3,000,000 and $1,000,000. These funding levels are discussed more fully in this report under the heading of Costs to the Government. Except as specifically noted, discussion of impacts concerns the full $5,840,000 five-year funding of the Proposed Management Program.

A summary of the five-year land use and production changes expected under the Proposed Management Program and the alternative funding levels follows in Tables VI (a), (b), and (c).

II. Employment Impact (The following analysis was made prior to full clarification of the magnitude of the energy shortage.)

It may be desireable to separate the employment effects on people living in the KRNCA from the effects on people living in the influence zone. It is impossible to do so, however, because of the small population involved. Out of a total of 1,400 people living in the KRNCA and influence zone, only about 185 live in the KRNCA.

No substantial negative employment impacts are foreseen. Only in agriculture and residence construction is there any possible negative impact.

The possibility of negative impact in agriculture is the result of establishing livestock management on a seasonal basis in the KRNCA. It is possible that some of the available forage will not be used because the local ranchers may not choose to incur the additional expense required for seasonal management. However, since the employment involved in the use of all of the forage intended for use in the KRNCA amounts to only about two man-years per year, the loss of agricultural employment would be small.

The reduction in residential construction (See Table VI) in the KRNCA will have a small negative employment impact relative to conditions without the plan. Representatives of the Shelter Cove land development enterprise anticipate 60 to 80 new home starts annually in their subdivision in future years. However, the actual housing start rate at Shelter Cove over the past several years has been about five homes annually. Therefore, this actual experience based rate has been used in this analysis. While the proposed King Range management program is not expected to affect housing starts at Shelter Cove, any building increase approaching the magnitude expected by the developers will more than obscure the small negative housing construction employment impact resulting from BLM land acquisition elsewhere in the King Range.

Outside of Shelter Cove most structures are small and are owner constructed. They have very little impact on the labor market in the area. There may be some compensation for the decrease in residential construction in the form of increased building of residences outside of the KRNCA. It is expected that as the effects of the plan are realized, residence in the influence zone will become more desireable and increased building will result.

TABLE VI- (a) - SUMMARY OF USE CHANGES IN FIRST FIVE YEARS AFTER THE PLAN IS IMPLEMENTED

(Based on all lands in the KRNCA - Federal & Private)

		After Five Years	
	Present Level	Without the Plan	With the Plan (Full level-$5,840,000)
Annual Recreation Visits to KRNCA (Visitor Use Days)	56,400	72,300	140,000
Residences: In Shelter Cove	40	65	65
Outside of Shelter Cove	18	25	20
Annual Timber Harvest (Million board feet Int.1/8" rule)	0	1.6	2.4
Watershed rehabilitation and erosion control projects:			
Acres of Land Treated	0	0*	12,251
Miles of Road Treated	0	0*	43
Domestic Livestock forage utilized (animal unit months)	1,300	1,300	1,274
Mineral Production	0	0	0
Streams improved for anadromous fish (miles)	0	0	34
Wildlife Observation/hunting access improvements (miles):			
Access Roads	0	0	3½
Four-Wheel Drive Roads	0	0	6
Brush and Trail Openings	0	0	17
Known raptor nest sites protected (number of sites)	0	0	2
Areas of potential raptor cliff habitat protected from additional intrusive development for a radius of 1½ miles.	3	3	4

*Most of the land in need of rehabilitation is in private ownership, and no rehabilitation by these owners is expected.

TABLE VI- (b) - SUMMARY OF USE CHANGES IN FIRST FIVE YEARS AFTER THE PLAN IS IMPLEMENTED

(Based on all lands in the KRNCA - Federal & Private)

		After Five Years	
	Present Level	Without Plan	Alt. Funding Level 1 ($3,000,000)
Annual Recreation Visits to KRNCA (Visitor Use Days)	56,400	72,300	90,800
Residences: In Shelter Cove	40	65	65
Outside of Shelter Cove	18	25	20
Annual Timber Harvest (Million board feet Int.1/8" rule)	0	1.6	1.6
Watershed rehabilitation and erosion control projects:			
Acres of Land Treated	0	0 *	6,070
Miles of Road Treated	0	0 *	21
Domestic Livestock forage utilized (animal unit months)	1,300	1,300	1,300
Mineral Production	0	0	0
Streams improved for anadromous fish (miles)	0	0	12
Wildlife Observation/hunting access improvements (miles):			
Access Roads	0	0	2
Four-Wheel Drive Roads	0	0	4
Brush and Trail Openings	0	0	6
Known raptor nest sites protected (number of sites)	0	0	2
Areas of potential raptor cliff habitat protected from additional intrusive development for a radius of 1½ miles.	3	3	4

*Most of the land in need of rehabilitation is in private ownership, and no rehabilitation by these owners is expected.

TABLE VI- (c) - SUMMARY OF USE CHANGES IN FIRST FIVE YEARS AFTER THE PLAN IS IMPLEMENTED
(Based on all lands in the KRNCA - Federal & Private)

		After Five Years	
	Present Level	Without Plan	Alt. Funding Level 2 ($1,000,000)
Annual Recreation Visits to KRNCA (Visitor Use Days)	56,400	72,300	90,800
Residences: In Shelter Cove	40	65	65
Outside of Shelter Cove	18	25	20
Annual Timber Harvest (Million board feet Int.1/8" rule)	0	1.6	1.6
Watershed rehabilitation and erosion control projects:			
Acres of Land Treated	0	0*	0
Miles of Road Treated	0	0*	0
Domestic Livestock forage utilized (animal unit months)	1,300	1,300	1,300
Mineral Production	0	0	0
Streams improved for anadromous fish (miles)	0	0	0
Wildlife Observation/hunting access improvements (miles):			
Access Roads	0	0	0
Four-Wheel Drive Roads	0	0	0
Brush and Trail Openings	0	0	0
Known raptor nest sites protected (number of sites)	0	0	2
Areas of potential raptor cliff habitat protected from additional intrusive development for a radius of 1½ miles.	3	3	4

*Most of the land in need of rehabilitation is in private ownership, and no rehabilitation by these owners is expected.

Very little employment beyond the direct effects (i.e. indirect, secondary or multiplier effects) can take place in the KRNCA or influence zone without developing facilities for consumer services (stores, schools, motels, restaurants, and medical facilities). These services are now either absent or, at most, adequate only for present use. People in this area spend a large portion of their incomes at the population centers such as Eureka, Fortuna and Garberville. This limits the economic benefit in the KRNCA and influence zone. Motel and other tourist oriented facilities are particularly limited at present. The existing facilities may be inadequate to accommodate even the expected demand in the absence of the plan.

Table VII shows a projection of recreation use in the KRNCA The additional visitation associated with the program would result in an addition of approximately $237,000 in tourist and recreation expenditures in southwestern Humboldt County during the fifth year.

TABLE VII

Projection of Recreation Use of the KRNCA

Visitor Use Days (V.U.D.)
[Number of Visitors]

Program Year	W/O KRNCA Program*	W/KRNCA Program**
Current	56,400 [39,000]	N.A.
5	72,300 [50,000]	140,000 [97,000]
10	92,500 [64,000]	226,000 [156,000]
15	117,000 [81,000]	364,000 [252,000]
20	149,000 [103,000]	587,000 [406,000]

* Assumes a 5% annual rate of increase.

** Assumes a 20% annual rate of increase for the first five years and a 10% annual rate of increase for the next fifteen years.

The column showing use with the KRNCA program is based upon analysis of visitor records for state parks in the area, the Redwoods National Park, and BLM records for the California Desert. The state park records do not yield any consistent trend but the campgrounds are full to capacity through most of the summer. The most recent three years of records in the newly established Redwoods National Park show over 20% annual increase in visitation at the visitor stations. BLM records on use of the California Desert, kept since 1968, show a 10% to 15% annual rate of increase. The KRNCA projection is not based on the capacity of the recreation resource or access routes. As such, it may be viewed as an upper estimate of recreation use, particularly in the later years. Furthermore, these projections do not reflect the ramifications of a continued serious energy shortage.

Under the two lower level alternatives, visitor increase would be expected to fall back to a 5% rate after the initial five-year period. This would largely result from visitor disappointment as the increased pressures of the initial period bring overcrowding of present facilities and resource deterioration. If a full program of recreational development and visitor management is initiated after the end of the five-year constrained period, a new surge of visitor use would be likely followed by a 10% annual growth rate similar to that of the proposed program.

Additional recreation and tourist expenditures in southwestern Humboldt County would be approximately $154,000 at the end of either of the lower level five-year programs.

The greatest employment impact will result from land exchanges. This is discussed under the heading "Impact of the Land Acquisition Program." The present section discusses only the impact of BLM plans and activities carried out within the KRNCA boundaries.

The KRNCA plan calls for numerous small improvement projects to be carried out in the first five years of its operation. The direct employment provided by these projects plus employment added in timber harvest and direct BLM employment will add to 71 man years of employment. This is called the direct employment impact and is the direct addition to the amount of employment which would exist in the subject time period without implementation of the plan. Most of this employment will be in the form of seasonal jobs; only two year-round BLM jobs are included. In terms of the number of jobs involved, this amounts to about 40 to 45 jobs at the peak of the summer season in each of the five years. Since most of this employment is expected to occur in the summer season, it will do little to relieve the high winter unemployment which characterizes the region.

The total employment increase in Humboldt County in the first five years, including the resultant expenditures from directly increased employment, will be about 115 man years.[22/] This will mean 14 to 35 new jobs due to indirect effects making a total of 54 to 80 additional jobs each summer over the first five years of the plan. Most of the indirect effects may be expected to be added in the service occupations in the population centers. It may be that in some service industries excess capacity exists to the extent that the additional demand may be handled with no additional employment. It is most likely that those jobs which are added through indirect effects will be in the southwest Humboldt area.

It appears that if recreation use develops at the projected rate there will be sufficient demand by the fifth year, and certainly by the tenth year, to justify significant new private business investment. This would probably be in the form of overnight facilities, eating and drinking establishments and retail merchandise business. Without the program there would be little additional investment except at Shelter Cove. The use level projected for the twentieth year is ten times the present use. This would justify extensive investment in recreation service business and would also encourage the establishment of businesses to serve an increased permanent population.

As indicated in Tables VI-(b) and VI-(c), significantly less recreational visitor usage of the KRNCA is expected under the $3 million and $1 million five-year funding level alternatives. At both levels a total of 90,800 visitor use days annually is expected at the end of the first five years of program operation. This projection is based on an estimated 10% annual increase in visitation for the first five years of the plan, as opposed to a 20% initial annual increase with a full program and its associated recreation facility and management provisions.

The 10% initial annual increase would be attributable primarily to the naming of King Range as a National Conservation Area with the attendant subsequent publicity associated with such actions. The two lower funding levels would have little effect in determining usage increase, but would affect instead the quality of that use. The $1 million level program is basically custodial and aimed at completing basic land acquisition. The $3 million program is conservation and protection oriented. It does provide some minimum coverage for parking and sanitary facilities in heavy recreation use areas. The full $5.8 million program, in addition to increased conservation and environmental protection, provides for expanded trail systems, campgrounds, visitor contact facilities and natural resource interpretive programs for visitors. For this reason the 20% annual increase rate associated with new recreation areas, such as the Redwoods National Park, is used.

In terms of employment generation, the lower level funding alternatives would provide very little of the annual countywide direct and indirect employment increase associated with the fully funded program. There would be just a few additional jobs generated above the No-program level. Land exchange employment impacts would be the same as the full program, however.

Most of the projects in the plan are scheduled for completion in the first five years. After that, employment due to projects will decline; only certain recreation and road construction projects continue.

Given the projected recreation use, some county road construction and improvement will be necessary. This will contribute to employment in southwestern Humboldt County. Since the BLM has no control over county decisions on road improvement, it is impossible to provide a meaningful estimate of the amount of road improvement the county would do if recreation were at the projected levels. However, in the section of this report titled Impact on Local Government there is a summary of roads which would probably fail to meet safe standards at the projected use levels. With present construction practices, low standard roads require two to four man months of employment per mile in the construction stage.

There will be some long-term employment benefits from the plan. Some nonproject sources of employment will continue to provide more employment. Recreation use of the KRNCA is expected to continue to increase in the foreseeable future. After the thirtieth year the timber harvest will increase. If all of the land designated for intensive timber management by the plan, both that presently in public and private ownership, is managed using the intensive methods described in the plan, the annual harvest will be 11.2 MM board feet by the eightieth year. Table VIII shows the annual harvest volumes up to the one hundredth year under BLM land management alternatives. The first alternative is based on BLM management of all land selected for intensive management. The second alternative represents the lands in BLM ownership as of June 1973 plus 1,800 acres of nonstocked timberland expected to be acquired by fiscal year 1975. The third alternative is the harvest from the same land base using only restocking of harvested areas and normal BLM harvesting procedures. Alternative 2 is the one used to estimate the feasibility of the intensive forest practices and the impact of the plan.

TABLE VIII

Sustained Yield Annual Harvest Volumes MMbf (Int. 1/8")

Years	Alternative 1 BLM & Private With Intensive Mgmt.	Alternative 2 BLM Only With Intensive Mgmt.*	Alternative 3 BLM Only Without Mgmt. Practices
0-39	2.4	1.9	1.2
40-49	4.5	2.4	1.4
50-59	5.5	3.6	1.4
60-69	7.3	4.9	1.4
70-79	10.6	7.3	3.4
80-89	11.2	8.1	3.9
90-99	11.2	8.1	4.1

*Includes 1,800 acres of private land scheduled for acquisition

The annual harvest volumes shown in Table VIII do not take into account any decrease in acreage designated for intensive forest management which may result from the findings of the intensive wildlife and antiquities surveys.

All three alternatives show the timber harvest increasing over time. This is the result of the slow growth of the existing timber stand combined with the expected rate of restocking and growth on restocked stands.

There has been a moratorium on timber harvest from the national resource lands within the KRNCA since 1966. Very little timber has been harvested from the private lands in the KRNCA in the last few years. Therefore, there will be no actual reduction in timber harvest and employment resulting from the forest management program in the KRNCA.

The 2.4 MM timber harvest from the KRNCA will be only 0.3% of the total Humboldt County harvest. Since there is essentially no harvesting in the KRNCA now, there is zero industry dependency now. The KRNCA cannot be regarded as having the potential to produce a significant part of the county's cut.

Even before the moratorium, when the timber boom was on in the King Range Area on private lands, the harvest from what is now the KRNCA was always less than 0.5% of the county's total harvest. Nevertheless, each million board feet of timber harvested in Humboldt County adds from 13.2 to 17.6 man years of direct and indirect employment within the county.[23] Timber production under the plan* would thus account for 32 to 42 man years of annual in-county employment, probably distributed among a much greater number of seasonal jobs.

As indicated in Tables VI-(b) and VI-(c), the two lower funding level alternatives for the initial five-year program would produce only 1.6 million board feet annually from all ownerships in the KRNCA (1.2 million board feet from national resource lands) during the first five years of plan operation. This level could be sustained over the next four decades followed by moderate increases beyond that due to natural restocking of areas logged over before plan implementation. Alternative 3 in Table VIII represents the closest tracking of production at the lower levels of funding over time. However, it is confined to national resource lands only. Considering all ownerships, sustainable production capability would be one-third higher for the first 40 years, reaching at least 5.5 million board feet annually by the tenth decade.

The 1.6 million board foot annual cut capability projected for the initial five years under the lower level funding alternatives is exactly the same as the projected harvest without the plan as indicated in Tables VI-(b) and VI-(c). King Range timber is a part of the overall Ukiah District forest inventory for allowable cut purposes. It's share of production would be harvested with or without the plan. The difference is that at the lower levels of funding, intensive forest practices such as thinning, fertilization, genetic improvement and rehabilitation of cutover lands acquired from private ownership cannot be undertaken. Little more than reforestation of BLM timber sales can be done and this by requiring it as a condition of the timber sale contract.

As to employment impact, the lower level of harvest under the lower funding levels would provide 11-14 less man years of direct and indirect employment in Humboldt County.

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* (Full plan, intensive management.)

III. Impact of the Land Acquisition Program

In order to fully carry out the KRNCA plan a land acquisition program has been started by the BLM. Prior to the acquisition program about 31,000 of the 54,000 acres within the KRNCA boundary was national resource land. Upon completion of the acquisitions shown in the five year activity plan there will be approximately 47,500 acres of national resource land. This will leave 6,500 acres in private ownership.

Most of the land in this schedule has a per acre value of $100 to $1,000. A few small parcels are higher, ranging up to $13,000 per acre. About 95% of the acreage acquired by the government is expected to be by exchange. The rest will be through ordinary purchase. Since acquisition through condemnation is limited by the Act to cases of incompatible land use, all acquisitions are expected to be voluntary.

a. Impact of Acquisition Program - Local Community

In the absence of the KRNCA plan and acquisition program the number of residences in the KRNCA would probably increase from 58 to 85 in the next five years. With the plan and acquisition program in effect the number of residences will probably be 80. This indicates that the construction of five residences in the five year period will probably be prevented. The plan is not expected to have any impact on the number of homes constructed at Shelter Cove. The residence construction which would be prevented by the plan would probably have been located in Whale Gulch, along the Chemise Mountain Road, along the Kings Peak Road, or in the Nooning Creek vicinity. The means by which residential development will be slowed outside of Shelter Cove is the acquisition program; most of the potential residential sites will be in BLM ownership.

The negative economic impact on residence construction is expected to be very small due to the small number of residences involved and the small monetary input usually involved in residence construction outside of Shelter Cove. There will be some compensatory effect in the influence zone due to the increased attractiveness of this area for residence as the KRNCA plan goes into effect.

Other than decreasing future residence development in the KRNCA, the land acquisition program will have little effect on the basic land uses. The effect will be a matter of intensity of management. There will be some land removed from livestock use in the Paradise Ridge and Honeydew Creek vicinities. The increase in capacity elsewhere in the KRNCA makes up for these losses but redistributes the forage among the ranchers. Acquisition of critical wildlife habitat will prevent future residential, timber or livestock use of some areas. Examples of this are protection of raptor nesting habitat and limiting livestock use in the Roosevelt elk range. Throughout the KRNCA the acquisition program will generally facilitate more intensive management rather than land use changes. It will accommodate widespread legal recreation access and preserve the existing areas of unique features.

It appears that there is little opportunity for negative effects on people in the KRNCA or influence zone resulting from the acquisition program. Since the use of condemnation proceedings is limited to cases of "incompatible" private land uses, little negative impact on landowners could occur. There may be some negative impact on local governments. That is discussed in a following section.

In addition to the effects resulting from ownership transfer of lands in the KRNCA there will be effects from private acquisition of "selected lands" outside of the KRNCA. These are national resource lands given up to acquire private lands in the KRNCA via a land exchange.

These selected lands are isolated parcels of national resource land which are inaccessible to the public and the BLM. They generally have high per acre timber volumes and hence high market value. It is expected that these selected lands will be logged within three to five years after they are acquired by private owners. Since the ownership pattern restricts BLM timber sales on these lands, the timber harvest may be thought of as a result of the KRNCA acquisition program. There may be sixty or eighty million board feet of timber involved in these exchanges. This amount of timber harvest would generate 790 to 1400 man-years of employment in Humboldt County, counting both the direct and indirect employment impact.

This is by far the largest employment impact of the plan. Most of the impact will take place outside of the southwest Humboldt area but inside Humboldt County. The effect on jobs in the county will be an addition of 316 to 560 jobs at the peak of the summer season for about five years. This will be an increase of 0.8% to 1.4% in the county's employment.

The private lands to be acquired by the BLM have a standing volume of approximately 100 MMbf. This may be compared to the 60 to 80 MM on the selected lands to be given up. Due to its quality and logging costs, the timber on the selected lands has a higher value per thousand board feet, $100 versus $60 per MBF. The sustained yield annual cut capacity of the scattered selected lands is 1.4 to 1.9 MM. The annual cut capacity of the acquired lands in the KRNCA is 1.7 MM. In other words, if the intensive management practices were applied to both the selected and the acquired lands, the allowable cut potential would be about the same. However, multiple use and environmental considerations dictate that 90% of the acquired timber volume should not be subject to harvest; much of it is on the west slope. Only 10 MM of the 100 MM acquired timber is within the east slope intensive forest management area. Most of the acquired land in that area, Zones 6 and 7, is either unstocked or stocked with immature timber. As a result, the BLM is acquiring an annual cut capacity of 0.5 MM and giving up 1.4-1.9 MM capacity.

Thus, in net effect, from .9 to 1.4 million board feet of annual federal sustained yield timber harvest valued at a stumpage value of $90,000 to $140,000 is given up as a result of the exchange in order to obtain and preserve other public values.

The net effect to the county's timber industry and the nation's wood products users is different from the impact on BLM timber production. The timber on the selected lands is not lost to the nation, it is merely transferred from public ownership to private industry ownership. It will remain in timber production but will be harvested sooner than it would under BLM ownership. Its present net worth in private ownership may be greater than in BLM ownership because it will be harvested sooner, in three to five years, under private industry ownership. These stands are generally nonproductive in net growth terms at present, but BLM cannot harvest them as fast as the probable industry owners.

The lands to be acquired by the BLM would probably contribute little timber harvest in private ownership in the near future in spite of their 100 MM total volume. Logging most of these stands would require a permit from the California Coastal Commission. It is not clear that such a permit would be issued, or, if issued, whether it would contain prohibitive restrictions. This is a very expensive area in which to log due to its remoteness and the ground conditions. The new State of California forest law requires that a stand be restocked within five years of harvest. On most of the acquired lands tree planting would be required to meet the law.

In addition to the above, the private owners of these stands appear to have nontimber ownership objectives. They recognize that these lands have substantial recreation value and that this value would be damaged by timber harvest. All of this tends to discourage private harvest on these lands.

From the view of impacts on the county's employment and the nationa's timber harvest, the government will acquire timber which probably wouldn't contribute much in private ownership in the near future; the private sector will acquire timber which isn't growing and wouldn't be harvested in government ownership in the near future. There will be a loss of some of the county's sutained yield capacity due to BLM decisions in the KRNCA, but this will be compensated for by intensive management in the KRNCA and sooner harvest of overmature stands on the selected stands.

It is possible that the west slope of the KRNCA would have been harvestable in the long run without the KRNCA program. In that case, the management program results in a reduction of the county's sustained yield harvest capacity of 1.4 to 1.9 million board feet. At the present stage of forest products production technology this would mean a difference of up to 50 seasonal jobs or 32 man years of employment each year.

The current timber harvest in Humboldt County is probably between 800 to 900 million board feet. The harvest from the selected lands will probably be a net addition to the county's cut because there is widespread excess milling capacity in the timber industry. Assuming the selected lands are logged during the next five years, there will be a temporary 1.3% to 2% increase in the county's timber harvest resulting from the acquisition program.

A further economic impact of the acquisition program is its effect on land values. The effect is to increase land values inside the KRNCA in the short-run while the acquisition program is active, and to increase the value of land in the vicinity of the KRNCA in the long-run as the benefits to landowners from coordinated land use, resource protection, and improved public access become obvious. There is already evidence in the King Range appraisal reports that the acquisition program has affected land sale prices in the KRNCA. This is to be expected because the government entry into the land market is a net increase in demand of some magnitude. There is little cause to expect the inflation of land values resulting from the government caused increase in demand to extend outside of the KRNCA because the acquisition program is restricted to well understood boundaries.

b. Impact of Acquisition Program - Local Government

When private land is acquired by the BLM it becomes national resource land. As such, it is not taxable. The result is a reduction in the amount of taxable property to support the county government, schools and special districts.

The assessment on the properties planned for acquisition is approximately $554,000. The annual tax revenue from this property is approximately $44,000.

A measure of the impact of removing this property from the tax rolls is the assessed value of the properties to be acquired by the government as a percentage of the total assessment in the districts involved. The districts involved are the Mattole Union Elementary District and the Southern Humboldt Unified School District. The acquisition program could remove $360,100 (6.8%) of the assessment in the Mattole Union Elementary District. This may be compensated for by private acquisition of national resource land in the district. The probable assessment of national resource lands selected for exchange in the district is $593,000. Clearly, there is a potential for a net increase in the district through KRNCA land exchanges. Most of this selected land has timber stands which would be logged within three to five years after it is exchanged into private hands. Its assessment after removal of timber would be about $17,000. This would mean that if all of these selected national resource lands in the Mattole Union Elementary School District are transferred to private ownership, and logged, the district will lose 6.5% of its property assessment through the acquisition program after gaining a temporary assessment increase. There is no offset available through a yield or severence tax currently in California.

The potential tax revenue loss to the district could be made up by a tax rate increase of $0.094 per $100 of net assessment. The resulting tax rate would be $1.475. This would still be the second lowest elementary school tax rate in Humboldt County. It is significant too that the property tax rate in the tax district where the BLM would acquire the land has the third lowest total property tax rate in Humboldt County.

The southern part of the KRNCA and influence zone are in the Southern Humboldt Unified School District. This is a very large district with a total assessment of over $22,000,000. The acquisition program would reduce this assessment by about $194,000 (0.9%)

The effects on total assessment in the two special districts in the southern area are also small. Acquisition in the Whitethorn Fire District will reduce assessments by 1.8%. In the Resort Improvement District No. 1 (Shelter Cove) the reduction in assessments will be less than one percent.

Since almost all of the selected lands lie within the Mattole Union Elementary School District, there will be a tendency to transfer assessment from the other districts to the Mattole Union District. If the timber is removed from the selected lands, as is anticipated, the acquisition program will result in a net reduction of assessment in Humboldt County. Since the actual quantity and location of land and timber which is transferred depends upon circumstances at the time of the exchange, the actual impact on the tax structure may vary from the above.

Landowners in the Shelter Cove development may be somewhat apprehensive about the potential for a plan which would have a negative impact on them. These landowners presently pay the highest tax rate in the area ($11.113 for 1973-74). In addition, this property seems to be assessed at a rate more closely approaching a professional appraisal value than is the other property in the KRNCA. The proposed plan will have no negative impact on these landowners other than a small reduction in total assessment in the Resort Improvement District. Minor tax rate increases do not pose nearly the magnitude of problems to landowners as can market fluctuations in such remote recreational subdivision acreages on the speculative market.

IV. Effects on Local Government

The possible impact of the King Range acquisition program on local government tax revenues has been discussed under Impact of Acquisition Program - Local Government. After taking account of the additions and deletions to the property tax rolls resulting from expected KRNCA land exchanges there is little net impact evident. The county receives 5% of the sale value of BLM timber sold. This will yield about $12,000 per year to Humboldt County in the first decade and will provide some limited compensation for costs borne by the county.

The BLM does not now pay any local government for services rendered in the KRNCA. The only services used are solid waste disposal from the campgrounds, and law enforcement. The State of California provides fire protection through its Division of Forestry. This is paid for by BLM under a statewide agreement.

No significant increase in costs to the county governments is expected to result from implementation of the KRNCA plan except in the case of roads. There will probably be an increase in calls to the sheriffs as greater numbers of recreationists use the area, requiring the assignment of another officer there. But, when viewed in the context of the sheriffs' countywide responsibilities the impact will be small. The mitigating measures called for in the protection portion of the plan also tend to minimize this potential cost increase to the county.

The solid waste disposal facilities are adequate for the near future but will require periodic improvements after the fifth year if recreation use increases at the projected rate. Humboldt County uses a container system to collect refuse and then hauls the refuse to a dumping area near Humboldt Bay. Expansion of the capacity in the King Range area would require either additional collection containers or more frequent pickup. BLM would logically pay the county for any additional service provided to it under a service contract or cooperative agreement.

Most of the county roads in the KRNCA and the influence zone may be inadequate for the traffic flow in twenty years if they are not improved. A road with at least a twenty-foot wide paved travel width and four-foot shoulders or turnouts is required for a 30 MPH traffic flow of 50 to 750 cars per day (two-way count).[24/] For a higher speed or heavier traffic flow a wider travel width is necessary. Much of the present road system is constructed to a lesser standard.

Table IX shows the county roads which may be inadequate for safe summer traffic flow. Without the King Range program the Shelter Cove Road would still require improvement in ten years. The road through the Humboldt Redwoods State Park has been very hazardous for years. The other roads in the area would probably not be in critical need of improvement in the absence of the King Range program.

Humboldt County has estimated the 1973 cost of improving these roads to be $150,000 to $400,000 per mile. Their decision on road improvement depends upon traffic flow, accident rates, and funding. Traffic flow over the Shelter Cove Road and the Chemise Mtn. Road will also be increased by development of the proposed Bear Harbor State Park.

TABLE IX

Outlook for Future Road Inadequacies on County Roads
Serving the King Range

(based on current standards and maintenance with future growth in use*)

Road	10 years	20 years	Est. present cost to improve[25/]
Shelter Cove	Narrow portions	Entire road	$1,320,000
Chemise Mtn.	Narrow portions	Entire road	820,000
Lighthouse Rd.	Entire road	Entire road	750,000
Kings Peak	Narrow portions	Entire road	1,900,000
Petrolia-Ferndale	Narrow portions	Entire road	2,610,000
Bull Creek (to Honeydew)	Portion through Humboldt Redwoods State Park	Portion through Humboldt Redwoods State Park	unknown

* Assumptions:

1) Recreation traffic flow increases at a 20% annual rate for the first five years and a 10% annual rate for the next fifteen years.

2) No increase in nonrecreation traffic.

Under present Federal Highway Administration programs, any subsequent reconstruction to handle additional recreational traffic would not qualify the county for any additional funds. Humboldt County does get substantial assistance from the FHA through the State of California, but the KRNCA plan will not affect the variables which determine the allocation of FHA funds to the county. Since the BLM is not authorized to compensate counties for this type of cost either, it appears that any additional road cost will be fully incurred by the county.

Road inadequacy forecasts presented in Table IX are based on visitor use rates projected for the full funding level of the proposed program. The lower visitor use rates of the two alternative lower five-year funding level alternatives would delay upgrading needs by 5 to 15 years beyond the schedule shown depending on the length of delay in making a transition to full management after a five-year constrained start.

Yet, improved roads for private automobile access are only one alternative made of transportation to be considered as such needs are faced in ten years. Congestion, safety and environmental protection considerations, coupled with transit economics may make some form of publicly operated transportation from points outside the KRNCA a desirable alternative. This decision must be deferred pending studies of visitor use as management and use progress in the future.

V. Analysis of the Activity Plans

Economic information is a part of a vast array of information which is input for decision-making in public agencies. Unfortunately, the state of the economic art does not yet permit the unambiguous conversion of all impacts into dollars for evaluation and optimization in common units by public agencies.

For the purpose of making this plan and analyzing its effects, benefit-cost and cost per unit analyses were done where appropriate. Benefit-cost analysis was done where an activity produces income directly to the government. This analysis represents the impact of programs in a strictly profit-loss context. No indirect or non-monetary values are included because the available data does not permit conversion into monetary values unambiguously defined and directly comparable to market values.

Nonmarket values are indicated, where data permits, in a cost per unit analysis. In some cases only the direction of the impact is predictible, so no cost per unit analysis is shown. An important product of KRNCA management will be qualitative rather than quantitative. This sort of product contributes to the increase in visitation and overall quality of life, but it is not possible, at this time, to reliably predict the quantity and value of this impact.

Cost per unit analysis was done where the effects of a program could be quantified in a nonmonetary sense; it is intended to show dollars of input per unit of production. In both types of analysis a "with and without" approach is used. This represents conditions which would exist with and without a program at the same point in time.

Only two activities in the KRNCA produce a revenue directly to the government. They are forest management and livestock forage.

A range of alternative management programs for the forest resource was analyzed utilizing the computerized benefit-cost programs and forest simulation models of the BLM and the U.S. Forest Service. The alternatives were various intensities of management ranging from the present BLM program up through commercial thinning, precommercial thinning, planting genetically superior stock, converting brush to timber, and use of chemical fertilizer. The analysis investigates the financial feasibility of adding each of these measures in a logical sequence. The costs analyzed were just the additional costs to the government resulting from the additional intensive practice, and the benefits were just the financial returns to the government from the sale of wood. These costs and benefits were discounted at various interest rates ranging from five to fifteen percent to test the sensitivity to changes in the discount rate. The allowable cut effect (ACE)[26] is included because the BLM restricts itself to sustained yield forest management and the King Range Act specifies sustained yield management for all resources. The results from this analysis are summarized in Table X in terms of Present Net Worth.

Brush conversion is accepted as part of the intensive timber management plan because it will provide a positive return in the likely event of an increase in the price of stumpage, and because it provides certain nonmonetary benefits. These are: improved deer and fish habitat, soil stabilization, improved scenic appeal by provision of more contrast in vegetation, and improved recreation access.

TABLE X

Effect on Value of the Forestry Program of Adding Various Intensive Management Practices

King Range National Conservation Area

	All Include ½ of the Road Cost Discounted			
	PNW @ 5.5% Discount Rate		PNW @ 10% Discount Rate	
	Increment	Total*	Increment	Total*
Without Intensive Practices		$ 613,440.18		$211,037.26
Plus Pre-Commercial, Fertilization & Commercial Thinning	$456,627.79	1,070,067.97	$335,547.41	546,584.67
Plus Genetic Improved Stock	25,136.94	1,095,204.91	2,952.51	549,537.18
Plus Brush Conversion	- 55,518.48	1,039,686.43	- 8,292.90	541,244.28

* A positive PNW is equivalent to a benefit-cost ratio greater than 1 at the discount rate used.

NOTE: To get the total PNW (Present New Worth) add the appropriate increments to the PNW without intensive practices.

A benefit-cost analysis was done for the livestock grazing program also. It analyzes the impact of the expenditures for that activity. As with forestry, only the financial costs and benefits to the government are analyzed. A separate analysis was done for each of the two zones where grazing is proposed. Only the comparison of with and without the projects is analyzed; no incremental analysis was done because the parts of the project are interdependent. The results of this analysis are shown in Table XI.

TABLE XI

Present Net Worth (PNW)of livestock
Grazing Improvements by Zone
(Time Period = 50 Years)

	PNW @ 5.5% Discount Rate	PNW @ 10% Discount Rate
Zone 1 (Punta Gorda)	- $7,840	- $ 8,390
Zone 2 (West Slope)	- 22,910	- 24,050

From the information in Table XI it is clear that the range improvement will not pay for itself in additional grazing fees paid to the government. There are, however, other nonmonetary effects which are beneficial, such as improvements in watershed quality, and wildlife habitat through grazing management.

By managing the number and kind of livestock, and the location and season of use, it is possible to supply more forage for deer than would be available either with no livestock or no livestock management. At present the livestock using the KRNCA are almost unmanaged. By managing the livestock, the grass and brush will be maintained in a succulent condition and at a height convenient to deer. If the range were left to the deer alone, the plants would grow to a larger size, leaving less forage available to the deer.

This management system will also benefit the watershed. By maintaining the plants in a vigorous condition and eliminating overgrazing, the soil will be subject to less erosion than if the livestock were excluded or left unmanaged.

The livestock forage in the KRNCA will continue to be consumed mostly by sheep. The livestock forage production will be maintained at the same level as the present, about 1300 animal unit months. This is about 1% of all sheep forage consumed in Humboldt County.

Summary of Cost Per Unit Analyses

A summary of cost per unit of the activity plans not subject to reliable benefit-cost or other economic efficiency analysis, is presented below for each activity where applicable in terms of budget costs. (Based on 1973 cost level except where noted.)

Lands

Acquisition program cost $85 per acre. (Based on projected cost)

Access from Zone 1 to Zone 2 (easement) $5,175 per mile

Scenic rights from the Mattole River to Zone 1, thence from Zone 1 to Zone 2:
Method 1 - Easement @ $10,363/mile - budget cost

Method 2 - Land exchange budget cost @ $4,218/mile

Road access to county road
Method 1 - Easements @ $7,956/mile - budget cost

Method 2 - Land exchange @ $6,372/mile - budget cost
(Nonbudget costs of land exchanges planned are discussed in the next section - Costs to the Government)

Watershed

Zone 2:	
Rehabilitate abandoned roads	$1,195 per mile
Rehabilitate slide areas	$609 per acre
Improve road drainage plus $49/mi./yr. maintenance	$3,699 per mile
Rehabilitate logged areas	$24.71 per acre
Zone 6:	
Rehabilitate logged areas	$26.80 per acre
Correct road drainage plus $53.57/mi./yr. maintenance	$3,699 per mile
Stabilize grassland	$4.75 per acre
Rehabilitate slide areas	$602 per acre
Rehabilitate mined area plus $500/yr. for 1st 3 yrs maintenance	$5,000 per acre

Zone 7:	
Rehabilitate logged areas	$26.80 per acre
Stabilize converted timber area	$60.95 per acre
Improve drainage and stabilize road disturbance plus $60.98/mi./yr. maintenance	$3,144 per mile
Restore vegetation on unused roads	$1,195 per mile

Wildlife

Zone 6:	
Controlled burn	$24.28 per acre
Zone 7:	
Four-wheel drive roads plus $100 mi./yr. maintenance	$3,800 per mile
Brush openings (trail)	$1,425 per mile
Fisheries	
Stream improvement by contract	$9,950 per mile
By Ecology Corps	$1,440 per mile

Recreation

Increase visitor use and quality of experience	$1.80 per increased visitation in fifth year ($1.00 per increased V.U.D.)

D. COSTS TO THE GOVERNMENT

The cost to the government of the United States from the implementation of this plan is of two sorts: budget cost and opportunity cost. Budget cost is the sort of cost which would appear in the government budget as an expense. It represents payment for manpower and materials. Opportunity cost is the value of benefits foregone by making a decision which, in the present or future, prevents your doing something else. Its measure is the value of the best alternative use of the resource. Opportunity costs should usually be subtracted from project benefits or they will be overstated.

In this section the Proposed Management Program and two alternative lower funding levels are discussed. The basic land use plan and its objectives are not changed, but there is a change in the construction of improvements, level of protection of resources, and intensity of management in each of these alternatives. The same land acquisition program is incorporated in the alternatives as in the proposed program. Land use and production changes have been summarized previously in Tables VI-(a), (b), and (c).

I. The Proposed Management Program

Table XII shows the budget cost of the plan for the first five years of its full operation. Table XIII permits comparison of spending for basic functional categories under each level of funding for the first five years. In the absence of the plan, assuming there would be just the usual level of BLM administration and timber harvest, the cost of administering this area would be about $330,000. In effect, the additional budget cost of implementing the plan for the first five years will be $5,510,000.

Approximately $700,000 per year will be used for operation of the KRNCA, exclusive of the land acquisition and construction programs. Of this, $380,000 per year will be spent on administration, operation, construction and project supervision, and maintenance. The remaining $320,000 per year covers project work. The cost of administering and maintaining the facilities in existence at the end of the fifth year will be about $300,000 per year.

Opportunity costs to the people of the United States are limited largely to the results of the land acquisition program and timber production foregone to permit development and protection of other resource use values. The former involves the federal allowable cut capability foregone in the exchange program. The latter is found in the difference between a maximum resource and revenue producing program, within basic environmental constraints, and the balanced multiple use program proposed for the KRNCA with all of its tradeoffs and amenities. The opportunity or nonbudget costs here are not unique to the King Range program. Most are present in all BLM planning and management programs.

TABLE XII

Budget Cost to carry out the Plan by Activity - First Five Years of Full Operation (FY 76-80)

	($1,000's)*		
Activity	Proposed Program	Alt. Funding Level #1	Alt. Funding Level #2
Lands	687	687	509
Minerals	19	19	2
Timber	645	323	102
Livestock Forage	60	60	11
Watershed	841	430	13
Wildlife	606	218	40
Recreation	921	295	112
Support	665	305	95
Road Construction	422	211	-
Administration	974	452	116
TOTAL	$5,840	$3,000	$1,000

* Current costs are compounded at a 5% annual rate for manpower and 10% for contract construction to reflect cost trend experience in recent years.

TABLE XIII

Spending by Basic Functional Categories

FY 1976-1980
($1000's)

	Proposed Program	Alt. Funding Level #1	Alt. Funding Level #2
Administrative & Management	$3,495	$1,984	$ 558
Acquisition	442	442	442
Construction	1,903	574	-
Total Cost:	5,840	3,000	1,000
Equivalent manyears	81.2	53.7	28.2

The scattered, selected tracts of timber outside the KRNCA planned for exchange into private ownership have a standing volume of 60 to 80 million board feet depending on the parcels finally selected by the owners of the tracts obtained within the KRNCA. This represents a sustained yield annual cut capability of 1.4 to 1.9 million board feet that will be foregone by BLM. While a total of 100 million board feet will be acquired within the King Range, 90 million board feet of this lies on the steep, damageable west slope and will not be available for cutting under the plan. However, the 10 million board feet of harvestable timber and considerable immature acreage that will be acquired in the eastern portion of the KRNCA are estimated to provide an addition to the BLM allowable cut of .5 million board feet, annually. In net effect, a contribution of .9 to 1.4 million board feet of annual sustainable federal timber harvest valued at $90,000 to $140,000 annually, is foregone from inclusion in future BLM allowable cut calculations. The benefits of this investment are found in the protection of the fragile natural, primitive and scenic values of the west slope of the King Range.

Considered from a cash market value rather than from a production capability perspective, some $7.5 million in present timber and land values of selected tracts, are being spent by the United States in addition to the budgeted expenditures of under $1.5 million for land acquisition. For this, however, the people of the U. S. receive about $6.7 million in land values acquired in the King Range plus about $800,000 in net cash equalization payments to the U.S. Treasury. In the final analysis, a break-even proposition in terms of market values and cash transfers involved.

Use of land rather than appropriated money to acquire land reduces the impact of the acquisition program on the budget. Since the land acquired by the government will have a value of about seven million dollars, equalization payments will be received by the government for a value of up to one million dollars. Equalization payments will be necessary because the national resource land and timber selected by property owners exceeds the value of their property.

In the case of resource production foregone due to multiple use management decisions opting for less than maximum production alternatives, timber is the only marketable resource with significant dollar values involved. Under full production consistent with current BLM environmental protection standards, an annual allowable cut of 5.8 million board feet could be sustained within the King Range. Under the plan a total of 2.4 million board feet can be produced annually (1.9 million board feet from present national resource lands plus .5 million board feet from operable private forest lands after acquisition). The net difference of 3.4 million board feet is valued at $204,000 in stumpage revenues foregone annually. This opportunity cost provides protection of critical watershed, streamside buffers to protect fisheries, and other buffer zones and modified harvest methods to maintain aesthetic, recreational and wildlife values.

Opportunity costs have not been shown for temporary exclusions of other activities, principally timber management, to protect threatened wildlife species habitat. This will be done if and when such habitat is identified by the intensive inventory for those species. At that time a decision concerning land use will have to be made recognizing the opportunity costs involved.

The Act authorizes to be appropriated "...such sums as may be necessary to accomplish the purpose of this Act, but not to exceed $1,500,000 for the purchase of lands and interests in lands and not to exceed $3,500,000 for the construction of improvements."

The expenditures for lands and interests in lands pursuant to the Act will total $1,462,000. Of this, approximately $374,000 had been spent by the end of fiscal year 1973 (June 30, 1973). The remainder, $1,088,000, will be spent in bringing the plan of acquisition to completion by the end of fiscal year 1978. This includes a 5% annual increase in costs. The budget costs of acquisition are almost entirely made up of payment for independent appraisals, BLM manpower, and title costs.

If the value of the timber on the private land in the KRNCA were to increase relative to that on the selected land by eighty or one hundred percent, there might be an insufficient quantity of land and timber appraised for selection. If the price of timber were to sharply decrease and be expected to remain low for a long time, the timber industry would be less interested in making KRNCA land exchanges and direct purchase might be required. But both of these events seem unlikely. Nevertheless, unexpected effects of a sharp increase in timber prices during 1972 made it possible to obtain a greater than expected portion of the planned acquisition by exchange, thus eliminating a projected need for increased ceiling authorization. While unlikely, an equally steep plunge in timber prices could cause a loss of interest by timber companies in exchange transactions, shift the acquisition program back to more direct purchases, and require an increased ceiling authorization.

Construction of improvements, for appropriation purposes, is limited to buildings, roads, trails and recreation sites. It is used in that sense here and does not include rehabilitation of resources sometimes utilizing minor construction of fences and ponds. The cost of construction of improvements totals $4,200,000. Of the total, $1,903,000 is scheduled for projects in the first five years of the plan. This assumes that BLM manpower costs will rise at 5% annually and contract construction costs at 10% annually for the next five years and then stabilize. Most of the expenditures after the first five-year period will be for road construction and recreation improvements. Obviously this exceeds the 3.5 million dollar legislated limit.

The rates of cost inflation assumed above are representative of BLM experience in the recent past. The present trend in costs is upward. It appears, therefore, that in the event of a continuation of this trend, the legislative limit on expenditures for construction of improvements will prevent full implementation of the plan. The projects which are most likely to be cut off are those scheduled for the period after the first five years. These are mostly trails for recreation and road construction for access to harvest timber.

In summary, with costs at their projected level, acquisition of lands and interests in lands will cost $1,462,000 and construction of improvements will cost $4,200,000. Even in the case of continued inflation the land costs will probably remain within the existing limit as both sides of an exchange are affected; the cost of construction of improvements will exceed the limit if inflation continues; however, the ceiling will not be reached until well beyond the initial five years of the program.

II. Alternative Funding Level 1 ($3,000,000)

The KRNCA plan provides objectives and a means of meeting those objectives through a continuing management program which goes beyond the first five year funding period. Alternative Funding Level 1 is a means of meeting these objectives to the extent possible under constrained funding in the first five years and then providing operation and maintenance of resulting projects and facilities thereafter. It would provide for expenditures totalling $3,000,000 in the first five years and about $236,000 in operation and maintenace per year thereafter.

Although this alternative does not fully meet the objectives of the plan in the first or succeeding periods, it does not preclude an increased funding level at some future time period. The expenditures for the first five year period have been indicated above in Tables XII and XIII.

This funding level would permit completion of the land acquisition program, and full implementation of the minerals, livestock, and protection programs. The inventories for antiquities, historical values, and wildlife would be carried out. About one-half of the scheduled watershed protection, and road and trail development would be done. Some forest rehabilitation and a total annual timber harvest of 1.6 MM could be carried out.

Recreation development would consist of parking facilities at such heavy use areas as the mouth of the Mattole River and at Point Delgada at Shelter Cove plus sanitary facilities at the adjoining Black Sands Beach. No permanent visitor contact and administration facility would be built because it would not be effective if only partially completed. Instead, limited facilities for visitor contact and management headquarters would be provided by leased trailers located at Thorn Junction and Honeydew.

In addition to the reduced effectiveness of the program, as indicated by comparing Tables VI(a) and (b), certain other, but less readily quantified, opportunity costs would be incurred by choosing Alternative Funding Level 1 rather than the proposed management program. Deterioration of the beach and other areas of concentrated recreation use will occur. Erosion will continue unabated in many areas left untreated and Bear Creek will continue to carry large quantities of silt from the KRNCA.

The employment under this alternative will be less than under the full program: 10 to 15 additional jobs rather than the 54 to 80 additional jobs resulting from the KRNCA management program. Tourist spending will be less also: $154,000 additional spending by tourists in Humboldt County rather than $237,000.

If resource deterioration and visitor use impacts indicate at the close of the first five years of this program level that there is a need for an increased program or return to a full level effort, it can be done. However, the total program cost could be increased above that of the full proposed program as program costs increase over time proportionate to price increases for materials, construction and labor. Furthermore, some irretrievable resource losses will be sustained during the initial period at the constrained budget level.

III. Alternative Funding Level 2 ($1,000,000)

This is a minimum alternative funding level which would permit the expenditure of $1,000,000 in the first five years of the plan. As with Alternative Funding Level 1, it eliminates spending for certain items in the program in order to reduce the budget cost. Similarly, it does not preclude an increased funding level after the first five years to fully meet the objectives of the plan, if necessary.

The opportunity costs due to continuing soil erosion and deterioration of the recreation resource are even greater than for Alternative 1, as is indicated by comparing Tables VI (a) and (c).

This alternative consists largely of completion of the land acquisition program, custodial management of the resources, and provision of limited visitor contact and information. There would be no construction of improvements or development of permanent visitor contact and administration facilities. Again, Tables XII and XIII may be consulted for comparing expenditures. Operations and maintenance cost of this custodial management program in the years following the initial program would be approximately $121,000 annually. This is basically equivalent to the portion of the annual program during the initial five-year period that is not directly associated with land acquisition.

In brief, only the land acquisition and protection programs are intact in this alternative. The emphasis in all of the programs is on prevention of damage to resources resulting from continued low level management and increased demand on the resources. The livestock program would continue much as it is at present, with areas of overgrazing, year-round use, and conflicts with recreation use of the beach areas. Timber harvest would be limited to 1.6 MM rather than 2.4 MM per year because the intensive management of the forest resource would be delayed. Projects intended to protect or rehabilitate the watershed, wildlife, and recreation resources would be almost entirely eliminated for this five-year period. There would be no inventory for historical and archeological values, or threatened wildlife inhabitants and their habitat needs. Areas of concentration, damage, and conflict would deteriorate at an accelerated rate due to increased use with little increase in management effort. While a trailer would be used as a temporary visitor contact site at Thorn Junction, nothing would be provided to visitors at the Honeydew end of the KRNCA.

There would be little difference in employment between this funding level and conditions in five years without the special KRNCA management. One or two jobs would result from additional BLM employment to man the temporary visitor contact site. Approximately $154,000 more would be spent by tourists in southwestern Humboldt County than would be the case without designation.

No resource protection projects or construction could be done after the first five years without additional funding. It would be possible to undertake a program similar to the Proposed Management Program at that time with additional funds, but the cost of improvements will probably have risen by at least 50%.

In summary, this alternative would officially establish the KRNCA, stimulate increased interest and visitation, complete the land acquisition program, but do very little to distinguish its management from that of areas of lesser interest and potential.

Footnotes

1/ U.S. Bureau of the Census, U.S. Census of Population: 1970, Number of Inhabitants, Final Report PC(1)-A6 California. In this document rural basically means people living outside of a place with a population of 2,500 persons or more.

2/ Gerald W. Dean, Harold O. Carter, et al., "Structure and Projections of the Humboldt County Economy", University of California, Davis, 1973. (unpublished manuscript). p. 11.

3/ Humboldt County Labor Market Bulletins, California Department of Human Resources Development, 1972 and 1973. An additional 645 jobs were added to account for transportation workers not included in the HRD statistics on the lumber and wood products sector. The amount added was the result of data received in conversations with industry and HRD personnel in Eureka.

4/ Gerald W. Dean, Harold O. Carter, et al., op. cit., Table 4 p. 10.

5/ Daniel D. Oswald, The Timber Resources of Humboldt County, California, Pacific Northwest Forest and Range Experiment Station, Portland, Ore., 1968, p.2.

6/ State of California, California Statistical Abstract, Sacramento, California, p. 92, 1972.

7/ Daniel D. Oswald, op. cit., p. 7.

8/ B.R. Barrette, D.R. Gedney, and D.D. Oswald, California Timber Industries, Mill Characteristics and Wood Supply 1968. California Division of Forestry. Table 4, pp. 44-49. This shows county timber harvest in 1968 which may be compared to the 1970 harvest reported in the California Statistical Abstract - 1970.

9/ Daniel D. Oswald, California's Forest Industries -- Prospects for the Future. USDA Forest Service Pacific Northwest Forest & Range Experiment Station 1970. Table 17, p. 47. Percentage calculated from data in this table.

10/ Ed Holt, Production, Prices, Employment, and Trade in Northwest Forest Industries - 3rd Quarter 1972. USDA Forest Service Pacific Northwest Forest & Range Experiment Station 1972. Table 15, p. 31.

11/ California Department of Human Resources Development, Estimated Total Employment and Labor Force, Eureka Labor Market Area (Humboldt County), 1959-1970.

12/ Gerald W. Dean, Harold O. Carter, et al., op. cit., p. 10.

13/ California Department of Human Resource Development, Humboldt County Labor Bulletins for 1972-73.

14/ Gerald W. Dean, Harold O. Carter, et al., op. cit., p. 10.

15/ W. Donald Thomas, "Humboldt County Agricultural Statistics - 1972." Humboldt County Deparment of Agriculture.

16/ California Department of Parks and Recreation, "Statistical Report 1971-72 Fiscal Year." p. 3-4.

17/ Ibid.

18/ Information contributed by business people at Shelter Cove.

19/ Ibid

20/ The data is from the BLM User Survey of 1973.

21/ California Department of Fish and Game, "California Fish and Wildlife Plan", Supporting Data, Volume III, Part B., Oct. 1, 1965. p. 386

22/ The multiplier is 1.613. This is the household-household coefficient in the interdependence coefficient table in Gerald W. Dean, op. cit., p. 53. The multiplier represents the total change in economic activity in the labor sector of the economy due to the one unit (one job in this case) increase in demand for services from that sector.

23/ It is estimated that an additional one million board feet of timber harvested in Humboldt County will add 13.2 to 17.6 man years of employment in the county. This includes both direct and indirect effects and is derived from the following equation:

$$\text{Man years/MMbf} = \frac{(\text{Ave. employment in forest industry})}{(\text{Tot. annual timber harvest})} \times \begin{pmatrix}\text{household-household coefficient} \\ \text{from interdependence matrix in an} \\ \text{input-output study for the area}\end{pmatrix}$$

24/ American Association of State Highway Officials, A Policy on Geometric Design of Rural Highways, 1966, p. 261.

25/ Based on estimates contained in a letter from the Department of Public Works, County of Humboldt, dated Sept. 11, 1973. These are very rough estimates.

26/ Dennis L. Schweitzer, Robert W. Sassaman and Con H. Schallau, "Allowable Cut Effect", Journal of Forestry, July 1972, p. 415. The concept is explained in this article.

KING RANGE
NATIONAL CONSERVATION AREA
PROPOSED MANAGEMENT PROGRAM

Draft Regulations

- Draft Land Exchange Regulations
- Draft Mining Regulations for
  Locatable Minerals

United States Department of the Interior
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UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

KING RANGE NATIONAL CONSERVATION AREA

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United States Department of the Interior

May, 1974

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INTRODUCTION

Draft regulations involving amendments to Subpart 2273 and the addition of a new Subpart 3827 of Title 43, Code of Federal Regulations have been prepared in accordance with Sections 5 and 6 of P.L. 91-476 (the King Range Act).

The purpose of the amendment to Subpart 2273 is to provide the specific requirements for making exchanges within the King Range National Conservation Area.

The purpose of new Subpart 3827 is to provide requirements for carrying out activities under the mining laws within the King Range National Conservation Area, to protect the scenic and esthetic values from undue impairment, and to assure against pollution of the streams and waters of the Area.

These draft regulations will subsequently be processed through standard proposed rule making procedures. In accordance with the Department's policy on public participation in rule making, interested parties will at that time be given opportunity to submit written comments, suggestions or objections to the proposed rules prior to issuance of final regulations.

Chapter II, Title 43 of the Code of Federal Regulations is amended to read as follows:

1. The title of Subpart 2273 is amended to read "Exchanges: National Wild and Scenic Rivers System; National Trails System; National Conservation Areas".

2. A new paragraph (c) is added to § 2273.0-3 to read as follows: § 2273.0-3 Authority.

* * * * *

(c) National conservation areas. (1) The Act of October 21, 1970 (16 U.S.C. 460(y) provides for the establishment of the King Range National Conservation Area (hereinafter called the Area) in the State of California, and for the consolidation and management of the public lands therein. (2) In making exchanges for non-Federal lands and interests in lands under the above act the authorized officer may accept title to such lands or interests in land within the Area defined in ____________FR ____________ of______________(date) and convey to the grantor of such lands or interests an equal value of surveyed, unappropriated and unreserved public lands or interests in lands and appropriated funds when he finds the exchange is in the public interest and in accordance with the following:

(i) The public lands offered in exchange are in Humboldt and/or Mendocino County, California and have been classified by the authorized officer for exchange and (ii) if the value of the offered lands or interests in lands are at least equal to two-thirds of the value of the public lands or interests in lands the exchange may be completed by payment of the difference in value to the Bureau of Land Management or the submittal of a cash deposit or a performance bond in an amount at least equal to the difference in value assuring that additional lands acceptable to the authorized officer and at least equal to the difference in value will be conveyed to the Government within a time certain to be specified by the authorized office and (iii) If the public lands offered in exchange for non-Federal lands or interests in non-Federal lands have a value at least equal to two-thirds of the value of the non-Federal lands, the exchange may be completed upon payment by the authorized officer of the difference in value.

(3) Either party to an exchange may reserve minerals, easements, or rights of use either for its own benefit, for the

benefit of third parties, or for the benefit of the general public. Any such reservation, whether in lands conveyed to or by the United States, shall be subject to such reasonable conditions respecting ingress and egress and the use of the surface of the land as may be deemed necessary by the authorized officer. When minerals are reserved in lands conveyed by the United States, any person who prospects for or acquires the right to mine and remove such reserved mineral deposits shall be liable to the surface owners according to their respective interests for any actual damage to the surface or to the improvements thereon resulting from prospecting, entering, or mining operations. Prior to entering lands in non-Federal ownership, such person shall either obtain the surface owner's written consent or file with the authorized officer a good and sufficient bond or undertaking to the United States in an amount acceptable to the authorized officer for the use and benefit of the surface owner to secure payment of such damages as may be determined in an action brought on the bond or undertaking in an court of competent jurisdiction. Where written consent is not obtained, a letter request shall be filed with the authorized officer for a determination of the amount of the bond or undertaking. A copy of such request will be served on the surface owner or owners by certified mail.

(4) Upon acceptance of title, any lands or interests in lands acquired by the United States by exchange under the authority of Section 5 of the Act of October 21, 1970, shall become public lands, and shall become a part of the King Range National Conservation Area subject to all the laws and regulations applicable thereto without further order of the authorized officer.

(5) Any such transaction will be handled in a manner consistent with the authorizing law and with the regulations in § 2200.0-8 of this Subchapter.

DRAFT REGULATIONS: 43 CFR 3827

In Chapter II, Title 43 of the Code of Federal Regulations, Part 3820 is amended to add a new Subpart 3827 to read as follows:

PART 3820 - AREAS SUBJECT TO SPECIAL MINING LAWS

Subpart 3827 - King Range National Conservation Area.

§ 3827.0-1 Purpose.

These regulations set forth rules and procedures for prospecting, location of a mining claim, annual assessment work, exploration and development and other mining operations on lands within the Area so as to minimize adverse environmental impacts, protect the scenic and esthetic values against undue impairment and assure against pollution of the streams and waters within the Area.

§ 3827.0-3 Authority.

(a) The Act of October 21, 1970 (16 U.S.C. 460 y) affirms the applicability of the United States mining laws to the federally owned lands within the Area. It also authorizes the Secretary of the Interior to prescribe regulations to which activities under the mining laws and patents issued pursuant to it shall be subject.

(b) Section 102 of the National Environmental Policy Act of 1969 (42 U.S.C. 4332) authorizes and directs that, to the fullest extent possible, the policies, regulations and laws of the United States shall be interpreted and administered in accordance with the policies of that Act.

§ 3827.0-5 Definitions.

(a) The term "Area" in this subpart means those lands and boundaries described in ________ FR ________ of ________date which the Secretary of the Interior established as the King Range National Conservation Area.

(b) "Mining claim" as used in this subpart means any unpatented claim or millsite authorized by the Mining Law of 1872, as amended (30 U.S.C. 22 et seq.).

§ 3827.0-7 Scope.

(a) All prospecting commenced or conducted and all mining claims located within the boundaries of the Area after October 21, 1970, are subject to the regulations in this subpart.

(b) Rights of owners of mining claims valid on October 21, 1970 and thereafter maintained as valid mining claims are not limited or restricted by the regulations of this subpart.

(c) Any patent issued on any mining claim located after October 21, 1970, shall continue to be subject to the regulations in this subpart. This provision shall be incorporated in such patent.

(d) Prior to the commencement of any prospecting, location of a mining claim, annual assessment work, exploration and development or other mining operations within the Area defined above, a plan of operation must be filed and approved by the authorized officer.

§ 3827.1 Plan of operation.

§ 3827.1-1 Requirements.

(a) The plan of operation shall include:

(1) A copy of all notices of mining location and notices of assessment work of the mining claim involved in the plan;

(2) The name and address of the operator(s) and the owners(s) if operations are to be conducted by other than the owner(s). If any of the foregoing are other than individual proprietors, the names and addresses of the principal officers of the business entity and the person(s) designated to represent such entity with the Department of the Interior shall be included;

(3) A description sufficient to identify the area or areas on the ground within which the operations are being conducted or are to be conducted, and the estimated period of activiity;

(4) A map or sketch of access routes used or to be used and the description of the means of transportation used or to be used, submitted in compliance with the provisions of § 3827.1-2 (d) hereof;

(5) A map or sketch showing the location of existing and proposed roads within mining claims, a description of the type and standard of such existing and proposed roads, and a description of the means of transportation used or to be used;

(6) A list of equipment and a description of facilities used or to be used in the operations;

(7) A description of the methods of operation used or to be used;

(8) A map or sketch showing the location and size of areas upon which it is expected vegetation or soil will be disturbed;

(9) A description of the effects the operations are having or may have upon the environment and forest resources; and

(10) A description of the measures used or to be used to minimize the adverse environmental impacts of the operations including the measures to be taken to meet the requirements of § 3827.2 hereof.

(b) The plan of operation shall cover the requirements set forth in paragraph (a) above for the entire operation for the full estimated period of activity. However, if the development of a plan for an entire operation is not possible at the time of preparation of a plan, the operator shall file an initial plan setting forth his proposed operation to the degree reasonably foreseeable at that time, and shall thereafter file a supplemental plan or plans whenever it is proposed to undertake any operations not covered by the initial plan.

(c) At any time during operations under an initial or supplemental plan of operation the authorized officer may require the operator to submit a proposed modification of the initial or supplemental plan detailing the means of minimizing unforeseen significant adverse environmental impacts.

(d) Determination as to whether an environmental statement will be prepared will be on a case-by-case basis and will follow the Guidelines of the Council on Environmental Quality (40 CFR 1500), with special consideration given to lands identified as "primitive" under the King Range Management Program.

(e) The existence of an approved plan of operation for prospecting or location of a claim does not preclude the authorized officer from denying approval of plans for subsequent exploration or development of that claim upon a finding that such operation will unduly impede the primary or dominant use of the area as defined by the King Range Management Program, if such use is determined to be other than mining, or unduly impair environmental values of the area.

§ 3827.1-2 Approval; access; inspection; noncompliance.

(a) Review of plan. No operation shall be conducted unless it is in accordance with an approved plan of operation. A proposed plan of operation shall be submitted to the authorized officer, who shall promptly acknowledge receipt thereof to the operator. Within thirty (30) days of such receipt, the authorized officer shall:

(1) Notify the operator that the plan of operation is approved or rejected; or

(2) Notify the operator of any changes in, or additions to, the plan of operation deemed necessary to meet the purpose of the regulations in this subpart; or

(3) Notify the operator that the plan is being reviewed, but that more time, not to exceed an additional sixty (60) days, is necessary to complete such review, setting forth the reasons why additional time is needed. However, days during which the area of operation is inaccessible for inspection shall not be included when computing the sixty (60) day period; or

(4) Notify the operator that the plan cannot be approved until a final environmental statement has been prepared and filed with the Council on Environmental Quality as provided in § 3827.1-1(d) hereof.

(b) Appeal from rejection. Any rejection under § 3827.1-2(a)(1) hereof shall afford a right of appeal in accordance with 43 CFR 4.411.

(c) Supplemental plan. A supplemental plan or plans of operation provided for in § 3827.1-1(b) hereof and a modification of an initial or supplemental plan as provided for in § 3827.1-1(c) hereof shall be subject to approval in the same manner as the initial plan of operation.

(d) Access. An operator shall be entitled to access in connection with operations but no road or other menas of access, including but not limited to landing areas for aircraft, shall be constructed or improved until the operator has received authorization in writing from the authorized officer. Application for such access shall be filed in the appropriate district office of the Bureau of Land Management and shall include a description of the type and standard of the proposed means of access, a plat showing the proposed route of access, and a description of the means of transportation to be used. Authorization for such access shall specify the location of the access route, design standards, means of transportation, and other conditions reasonable necessary to protect the environment and forest resources, including, but not limited to, vegetative screening and other measures to protect scenic values and to insure against erosion and water or air pollution. Any access granted on lands identified as "primitive" under the King Range Management Program shall be limited to "non-mechanized means".

(e) Inspection. Mining operations are subject to inspection to determine if the operator is complying with the regulations in this part and an approved plan of operation.

(f) Failure to comply. If an operator fails to comply with the regulations or his approved plan of operation, the authorized officer shall serve a notice of noncompliance upon the operator or his agent in person or by certified mail. Such notice shall describe the noncompliance and shall specify the action necessary to comply and the time within which such action must be completed, generally not to exceed thirty (30) days. The authorized officer shall require immediate suspension of operations if noncompliance is causing environmental damage, and make demand upon the operator or agent for any damages caused thereby.

(g) Trespass. Any mining operations conducted on lands within the Area without an approved plan of operation shall constitute a trespass.

§ 3827.2 Requirements for environmental protection. All plans of operation shall contain appropriate terms and conditions for the protection of the environment including but not limited to stipulations covering air quality, water quality, solid wastes, scenic vlaues, fishery habitat, roads, and surface reclamation and rehabilitation.

§ 3827.3 Performance bonds.

(a) To assure that an operator will faithfully comply with the regulations in this part and adhere to an approved plan of operation, a performance bond in a minimum amout of $100 will be required prior to approval of each plan of operation except where only prospecting is involved and there is no surface disturbance. In lieu of a performance bond, the operator may deposit into a Federal depository, as directed by the Bureau of Land Management, and maintain therein, cash in an amount equal to the required dollar amount of the bond or negotiable securities of the United States having market value at the time of deposit of not less than the required dollar amount of the bond. A blanket bond covering nationwide or statewide operations may be furnished if the terms and conditions thereof are sufficient to comply with the regulations in this part.

(b) In determining the amount of the bond, consideration will be given to the nature of the reclamation and restoration in the event that the operator forfeits his performance bond. This consideration will include (1) the size of the operations; (2) the estimated damage to the environment and the Area if the operator fails to comply with the regulations in this part or fails to adhere to the approved plan of operation; (3) the estimated cost of stabilizing, rehabilitating and restoring the area of operations; and (4) the type and amount of access to be constructed in connection with operations.

(c) In the event that an initial plan of operation is supplemented or modified in accordance with § 3827.1-1(b) and (c) hereof, the authorized officer will review the initial performance bond for adequacy and, if necessary, will adjust the performance bond to conform to the plan of operation as supplemented or modified.

(d) When the operations have been conducted and completed in accordance with the regulations in this subpart and the approved plan of operation, the authorized officer will notify the operator that the period of liability under the bond has terminated.

§ 3827.4 Use of mining claims, surface resources. Restrictions on the use of unpatented mining claims in addition to the regulations in this subpart are provided in section 4 of the Act of July 23, 1955 (69 Stat. 367, 30 U.S.C. 601) and the regulations in 43 CFR 3712.1(a).

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